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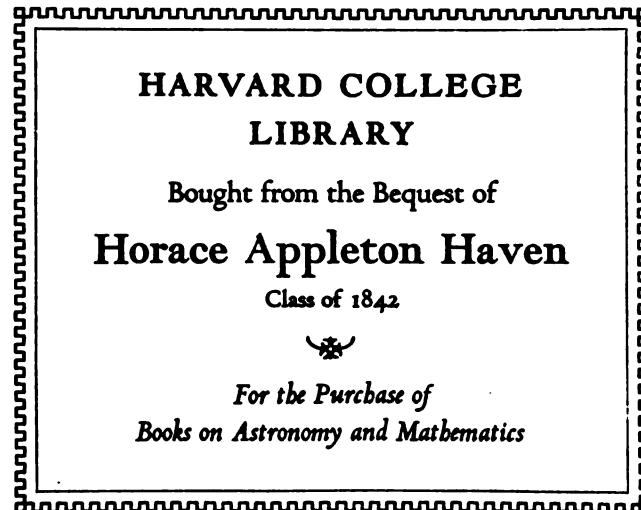


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Busch. Reduction of the observa-
tions made by Bradley. 1838

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REDUCTION

OF THE

OBSERVATIONS MADE BY BRADLEY

AT

KEW AND WANSTED,

TO DETERMINE

THE QUANTITIES

OF

ABERRATION AND NUTATION.

August 15, 1816
BY DR. BUSCH,

ASSISTANT ASTRONOMER AT THE ROYAL OBSERVATORY OF KÖNIGSBERG.

—————
Πάντων μέτρον ἀνθρωπος.

—————
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REDUCTION OF BRADLEY'S OBSERVATIONS.

OF Bradley's original observations on Aberration and Nutation, those results only were known which Bradley himself published in the Philosophical Transactions (No. 406. vol. xxxv. p. 637. and No. 485. vol. xlv. p. 1). It was known, however, that these observations were very complete; and it was supposed that a strict and accurate discussion of them would give the values of the constants of Aberration and Nutation with greater exactness, than had hitherto been attained: for, though Bradley himself had gone through the investigation, yet on account of the more extended developement, which the theory of Nutation has undergone in later times, and the recently invented methods of deducing the most probable results from observations, there was reason to expect that we might now obtain much greater precision. A wish was therefore expressed (Bessel "Fundamenta Astronomiae pro anno 1755," p. 122) that this series of observations, which had been lost sight of for nearly a century, might again be brought forward.

This wish has been gratified by professor Rigaud of Oxford, who had the good fortune to discover, among the books of the late professor Hornsby, a great many papers of Bradley, and among them the original observations for Aberration and Nutation. Mr. Rigaud thereupon imparted his discovery to astronomers in a work, containing much valuable information relating to Bradley, published at Oxford, in 1832, under the title of "Miscellaneous Works and Correspondence of the reverend James Bradley." This work contains not only the observations made by Bradley at Wansted, but those also which had been instituted at an earlier period by Molyneux at Kew, and continued there by Molyneux and Bradley conjointly. It contains likewise all the data requisite for a complete investigation of the constants of both elements, resulting from Bradley's observations.

The Royal Society of Sciences of Copenhagen were therefore induced to propose, in 1832, as the subject of their prize, "Observationes Bradleyanas, hoc anno Oxonii editas, ad calculos revocare, et in illarum vim inquirere." This prize question gave rise to the following inquiry.

The above-mentioned work of Mr. Rigaud contains an account drawn up by Molyneux himself of his instrument at Kew, from which I shall extract such

portions as are necessary for understanding the observations. The instrument was constructed for observing those stars only which passed very near the zenith, especially γ Draconis, which, besides possessing this advantage, is sufficiently brilliant to be visible in the day-time. This instrument, which Molyneux erected at his house at Kew, to repeat the earlier but unsuccessful experiments of Hooke, was a telescope, made by Graham, fixed in the direction of the zenith, and provided with means for measuring variations of zenith distances of stars*. To the object-end of the telescope there was attached a strong ring of brass, from which proceeded the pivots on which the instrument moved. Both pivots were of the same length and thickness, and their common axis passed through the centre of the object-glass. The supports for the pivots were fixed to the chimney wall of the house, which was built of brick, and 300 years old. The pivots were so contrived as to admit of being made perfectly horizontal, and of being moved in a direction perpendicular to the meridian. On the side of the telescope, to the west, hung the plummet, attached to a silver wire, which passed down the whole length of this side of the tube. On the telescope itself, at the part where the cross wires were inserted, there was screwed a small brass plate, bearing a black dot. The measurements depend on the supposition that, when the telescope has been so placed that the plumbline bisects the above-mentioned dot, its optical axis always preserves the same position with respect to the horizon. In the lower room, into which the eye end of the telescope passed, there was fastened to the same strong chimney wall a frame work, to which was attached a micrometer screw, by which the telescope could be moved in the direction of the meridian, and brought immediately upon the star: a weight suspended by a string, which passed over a pulley, always caused the telescope to bear against the screw. Prior to any observation, the telescope was so placed, by means of the micrometer screw, as to make the plumbline bisect the fixed dot; it was then moved, (also by the micrometer screw,) so that the star about to be observed might run along the wire stretched in the direction of its diurnal motion. The number of revolutions made by the micrometer screw, between the position in which the plumbline bisected the fixed point, and that in which the wire of the telescope was brought on the star, was the quantity to be observed. In order to convert the number of revolutions into seconds, it was ascertained that 42 revolutions of the screw were equal to an inch, and that the focal length of the object-glass was 24 ft. 3.15 in.: hence it follows, that the value of one revol. = $16''.86785$. The head of the screw was divided into 17 equal parts, each one of which therefore = $\frac{16''.86785}{17} = 0''.992226$.

* For a description of this instrument, see "Miscellaneous Works and Correspondence of Bradley." p. xiv. and p. 96, note c: also Smith's Optics. [EDITOR.]

The examination of the position of the fixed dot with respect to the plumbline was generally repeated after the observation. To avoid parallax in placing the fixed dot under the plumbline, a small lens of 1.5 inch focal length was made to bear upon the plumbline.

It is clear from this description, that an alteration in the position of the brick work, on which the apparatus was fixed, could have no effect on the observation.

I will illustrate the method of observing by an example.—On the 1st of Jan. 1726, [N.S.] γ Draconis was observed. Before the observation, when the plumbline bisected the fixed dot, the index stood at 8.00; after the observation, at 8.33: the mean therefore = 8.17. After the telescope had been directed to the star, the index pointed to 11.75. The difference between the two readings = 3.58 divisions (= 3''.55) gives the distance of the star from that point of the heavens to which the axis of the telescope was directed when the fixed dot was bisected by the plumbline. In this manner every observation made at Kew is recorded.

The instrument was erected on the 7th of Dec. 1725, and the first observation was made on the 14th of Dec. Little reliance, however, is to be placed on the observations before the 29th of Dec.; for on that day the deviation of the star's path, through the telescope, from the horizontal wire was noticed for the first time, and care was taken afterwards, on that account, to bring the star upon the wire at the instant of culmination.

The series of observations commences then on the 1st of Jan. 1726, and ends on the 9th of Jan. 1728. During this period we find 83 observations of γ Draconis, 7 of α Persei, 12 of a small star in Auriga, and 5 of ζ Ursæ majoris.

Bradley not having succeeded during the observations at Kew in finding an explanation of the variation of the zenith distances of stars indicated by the observations, proceeded to determine the amount of those variations more accurately, by means of new observations directed to a greater number of stars. But as there were only a few stars, of sufficient brightness to be seen in the day-time, within the range of the instrument hitherto employed, he induced Graham to construct another, with which he might be able to observe all the stars comprehended in a zone of $12\frac{1}{2}^{\circ}$, having the zenith point for its centre. This instrument (the first specimen of a zenith sector) was not erected at Kew, but at Wansted.

Bradley's zenith sector had, for the most part, the same construction and apparatus as Molyneux's instrument; with this difference, however, that instead of the dot fixed on the telescope of the latter, in Bradley's instrument the divisions of an arc, attached to the telescope, graduated to every 5' as far $12\frac{1}{2}^{\circ}$, were used for the same purpose. The graduation was so contrived, that the readings of the arc corresponded nearly with the polar distance of the observed star. The

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object-glass was 12 ft. 6.6 in. in focal length; and the eye-glass, always used, 2.2 in. The head of the micrometer screw was divided into 34 equal parts. To determine the value of one revolution of the screw in seconds of arc, Bradley measured with the zenith sector, on the 14th of Sept. 1747, the difference of the apparent zenith distances of the two stars β and γ Draconis, and found it 103 rev. 26.8 div. of the screw; at the same time, the same distance, according to the mural quadrant, was = 58'. 9". 5: hence,

$$1 \text{ rev.} = 34 \text{ div.} = 33''.6213, \text{ and } 1 \text{ div.} = \frac{33''.6213}{34} = 0''.98886.$$

The first observation with this instrument was made on the 30th of Aug. 1727, on the star γ Draconis. Before the observation, the sector was so placed that the point answering to 38°. 25' on the graduated arc exactly coincided with the plumb-line, and the index of the micrometer screw pointed to 18 rev. 31.0 div.: at the place of the star the index marked 21 rev. 1.6 div. So that the star was south of the point in the heavens, which corresponded to 38°. 25' on the graduated arc, by the difference of the two readings, viz. 2 rev. 4.6 div. = 1'. 11". 79. The observed polar distance of the star, therefore, inclusive of refraction and error of collimation, = 38°. 26'. 11". 79. In this way is given the result of every individual observation, made from the 30th of Aug. 1727 to the 14th of Sept. 1747. The following list contains the names of the stars observed, and the number of observations of each, made during this period.

| Names of Stars. | Numb. of Observ. | Names of Stars. | Numb. of Observ. | Names of Stars. | Numb. of Observ. |
|-------------------------|------------------------|----------------------|------------------------|-------------------|------------------------|
| λ Cassiopeæ | 42 | 13 Lyncis | 9 | \times Cygni | 17 |
| α — | 108 | ι Ursæ maj. | 9 | ι — | 5 |
| π — | 8 | f — | 10 | θ — | 16 |
| θ — | 18 | θ — | 10 | ψ — | 12 |
| ϕ — * ¹ | 1 | β — | 50 | 2α — | 17 |
| ξ Andromedæ | 19 | ψ — | 24 | 3ω — | 12 |
| δ Persei | 4 | χ — | 11 | $1f$ — | 8 |
| h — | 2 | γ — | 54 | g — | 4 |
| 65 Andromedæ | 2 | 3 Canum Ven. | 2 | 1π — | 14 |
| θ Persei | 17 | ϵ Ursæ maj. | 129 | μ Cephei | 3 |
| τ — | 58 | 21 Canum Ven. | 9 | ζ — | 18 |
| γ — | 65 | ζ Ursæ maj. | 133 | 3 Lacertæ | 6 |
| α — | 79 | g — | 17 | 3 Andromedæ | 3 |
| δ — | 44 | η — | 166 | 7 — | 3 |
| 9 Aurigæ | 21 | β Draconis | 247 | 8 — | 1 |
| α — | 222 | ι Herculis | 70 | τ Cassiopeæ | 16 |
| 18 Camelopardi | 36 | ξ Draconis | 61 | σ — | 4 |
| δ Aurigæ | 36 | γ — | 315 | $2v$ — | 10 |
| 35 Camelopardi | 44 | d — | 7 | ϕ Persei | 19 |
| 46 Aurigæ | 23 | c — | 9 | β Cassiopeæ | 107 |

* The same as 34 Cass. [EDITOR.]

Bradley, who had probably discovered the true explanation of the phenomena of Aberration and Nutation as early as the year 1728, and observed that the first comprehended an annual period, the latter a much longer one, (about 20 years,) might have perceived, that, although the Kew observations were sufficient for the determination of aberration, it was necessary to continue them in order to determine the constant of Nutation. A great many observations, however, were made at Wansted, which might serve for determining the amount of Aberration, and its effect on a greater number of stars than were observed at Kew. This is particularly the case at the beginning of the series. But when Bradley considered, as he had every right to do, that he had obtained the amount of Aberration with great precision, by the observations undertaken for that purpose, he contented himself, for the most part, with observations made at a particular time of the year. These he continued to the year 1747; thus extending them over a complete period of the Nutation. For this purpose he always left Oxford (where he filled the astronomical professorship) for Wansted; for it would have been injudicious to have taken the sector to Oxford, as thereby the relation of the observations to one zero point on the graduated scale would have been lost, and the termination likewise of the period of Nutation would have been thrown somewhat later.

II.

I now proceed to describe the manner in which I have discussed the observations.

First, I have reduced all the observations to one epoch; for which I have selected the beginning of the year 1730.

The auxiliary tables requisite for this purpose, containing the corrections for Precession, Aberration, and Nutation, which I shall annex to this memoir, I have computed in the following manner.

(1) The mean places of the observed stars, for the beginning of 1730, were computed by the formula in the *Fundamenta Astron.* p. 136.

$$\text{Loc. 1730} = \text{loc. 1755} - 25 \left\{ p - \frac{5}{18} (p' - p) \right\} - 25 \mu.$$

In which p and p' denote the *annual precession* for 1755 and 1800, according to the formula *Tab. Reg.* [16]; μ the *annual proper motion* in declination.

I have obtained the values of μ by comparing the places given in the *Fundam. Astron.* with more recent ones. If a star, observed at the Königsberg observatory, is to be found in the Catalogue of Declinations published in the 7th vol. of the Königsberg Observations, then the place there given for 1820 was selected as the basis of the determination of μ . If it be not found there, but is contained in Pond's catalogue for 1828, then its determination depends on a comparison with

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Pond's place. If it be not found in that catalogue, then μ was determined by comparison with Piazzi's declination for 1800. The mean places are as follow:

| Names of Stars. | Annual Precession for 1730. | Declination for 1730. | Annual proper Motion. | Names of Catalogues. |
|---------------------|--------------------------------|--------------------------|-----------------------------|-------------------------|
| λ Cassiopeæ | 4° 15' 55.5 | 53° 1' 36.09 | +0.138 | Piazzi |
| α — | 6 20 53.5 | 55 3 6.88 | -0.048 | Bessel |
| τ Persei | 38 49 57.4 | 51 37 56.46 | -0.045 | Pond |
| γ — | 41 21 48.6 | 52 25 17.12 | -0.016 | — |
| α — | 46 18 21.4 | 48 52 15.84 | -0.050 | Bessel |
| δ — | 50 57 49.3 | 46 53 34.03 | -0.039 | Pond |
| 9 Aurigæ | 71 24 23.0 | 51 11 51.66 | -0.216 | Piazzi |
| α — | 74 12 5.2 | 45 41 0.71 | -0.419 | Bessel |
| 18 Camelopardi | 77 22 41.0 | 56 58 59.19 | -0.232 | Piazzi |
| δ Aurigæ | 84 19 51.2 | 54 12 58.30 | +0.160 | Pond |
| 35 Camelopardi | 85 46 16.1 | 51 32 10.54 | -0.067 | Piazzi |
| 46 Aurigæ | 91 1 18.5 | 49 23 4.52 | -0.091 | — |
| β Ursæ maj. | 161 19 48.6 | 57 49 25.75 | -0.371 | Pond |
| ψ — | 163 35 14.1 | 45 57 28.21 | -0.077 | — |
| γ — | 174 52 5.4 | 55 11 44.26 | -0.020 | Bessel |
| ϵ — | 190 30 49.4 | 57 25 56.99 | -0.054 | Pond |
| ζ — | 198 14 53.5 | 56 20 37.59 | -0.023 | — |
| η — | 204 12 52.4 | 50 40 16.33 | -0.024 | Bessel |
| β Draconis | 261 5 16.6 | 52 30 50.45 | -0.005 | — |
| ι Herculis | 262 57 28.2 | 46 9 54.81 | +0.013 | Pond |
| ξ Draconis | 267 13 10.5 | 56 55 29.12 | +0.082 | — |
| γ — | 267 35 11.1 | 51 32 2.48 | -0.056 | Bessel |
| β Cassiopeæ | 358 44 56.9 | 57 39 36.87 | -0.203 | Pond |

Let us denote the value of the *annual precession* in declination for 1730 by $20'.06636$. Cos. *R. A.* 1730,

and the *annual proper motion* by m ; then the mean declination for the epoch $1730 + t$

$$= \text{Dec. } 1730 + tm + tt \cdot \frac{p' - p}{90}$$

in which $p' - p$ was taken from the *Fund. Ast.* Table I. of the Appendix contains the value of $tm + tt \cdot \frac{p' - p}{90}$, according to this formula, for the beginning of every year from 1727 to 1747, and for every star, when all whole numbers from -3 to +17 are substituted for t . The continuation of the same table gives, moreover, the mean motion for every 10th day of the year, or the value of τm ; where $\log. \tau$ is taken from Tab. 7. of *Tab. Reg.*

(2) If in the formulæ for Nutation, first given in *Fund. Astron.*, p. 127, and afterwards amended ^b, viz.

$$\Delta L = \{(-18.6377 \sin. \varpi + 0.21720 \sin. 2 \varpi - 0.21633 \sin. 2 \varpi) \cdot (1+i)\} - (1.13640 - 2.86868i) \sin. 2 \odot$$

$$\Delta \omega = \{(+ 9.6480 \cos. \varpi - 0.09428 \cos. 2 \varpi + 0.09391 \cos. 2 \varpi) \cdot (1+i)\} + (0.49330 - 1.24527i) \cos. 2 \odot$$

^b Bessel in Schumacher's *Astronomische Nachrichten*, Nos. 34 and 83.

we make $i = -0''.069541$, according to the calculations of Lindenau, then the above becomes changed into ^c

$$\Delta L = -16''.78332 \sin. \alpha + 0''.20209 \sin. 2 \alpha - 1''.33589 \sin. 2 \odot - 0''.20128 \sin. 2 \odot \\ \Delta \omega = + 8.97707 \cos. \alpha - 0.08773 \cos. 2 \alpha + 0.57990 \cos. 2 \odot + 0.08738 \cos. 2 \odot.$$

I have denoted the true value of the coefficients of the first term of the expression for $\Delta \omega$ by $8''.97707 (1 + i')$;

whence $1 + i = (1 - 0''.069541) \cdot (1 + i')$,

or $i = -0''.069541 + 0.930459 i'$:

and the above formula, if instead of being expressed in terms of i , be expressed in terms of i' , becomes,

$$\Delta \omega = \{ + 8''.97707 \cos. \alpha - 0''.08773 \cos. 2 \alpha + 0''.08738 \cos. 2 \odot \} \cdot (1 + i') + 0''.57990 \cdot (1 - 1.998i') \cos. 2 \odot.$$

It will therefore be necessary to multiply the terms of the formulæ in the *Tab. Reg.* by $1 + i'$ if they depend on the moon, and if on the sun by $1 + 1.998i'$, or, without sensible error, by $1 + 2i'$.

In *Tab. Reg.* [23] we have the formula for the effect of Nutation in declination:

$$\left\{ \begin{array}{l} -6''.68299 \sin. \alpha \cos. \alpha + 8.97707 \cos. \alpha \sin. \alpha \\ + 0.08046 \sin. 2 \alpha \cos. \alpha - 0.08773 \cos. 2 \alpha \sin. \alpha \\ - 0.08015 \sin. 2 \odot \cos. \alpha + 0.08738 \cos. 2 \odot \sin. \alpha \end{array} \right\} \cdot (1 + i') \\ + \{ -0''.53194 \sin. 2 \odot \cos. \alpha + 0''.57990 \cos. 2 \odot \sin. \alpha \} \cdot (1 - 2i')$$

This formula is derived from the expressions for ΔL and $\Delta \omega$, when the value is assigned to the obliquity of the ecliptic which it had in 1800. But as the observations to be compared with it were made at a much earlier period, a slight alteration must be made in those expressions, by substituting, for the value there assumed, the obliquity of the ecliptic for $1730 = 23^\circ. 28'. 26''.8$. Thus the formula for Nutation becomes,

$$(1) \left\{ \begin{array}{l} -6''.68079 \sin. \alpha \cos. \alpha + 8''.97646 \cos. \alpha \sin. \alpha \\ + 0.08048 \sin. 2 \alpha \cos. \alpha - 0.08776 \cos. 2 \alpha \sin. \alpha \\ - 0.08017 \sin. 2 \odot \cos. \alpha + 0.08741 \cos. 2 \odot \sin. \alpha \end{array} \right\} \cdot (1 + i') \\ + \{ -0''.53210 \sin. 2 \odot \cos. \alpha + 0''.58011 \cos. 2 \odot \sin. \alpha \} \cdot (1 - 2i')$$

Table II. of the Appendix has been computed according to this formula. It gives the amount of that part of Nutation, which depends on the place of the moon's node, for five times in every year, viz. for the beginning, and for 100, 200, 300, 400 sidereal days after. Following the example of *Tab. Reg.*, the year is supposed to begin when the sun's mean longitude = 280° . The rule for computing the argument for entering the table is also the same as that explained in *Tab. Reg.*:

^c *Tab. Reg.* [21.]

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for which reason it will not be repeated here. The following table contains the fraction by which the date of the day of observation is to be corrected:

| | | | |
|------|--------|------|--------|
| 1725 | +0.071 | 1737 | +0.166 |
| 26 | -0.170 | 38 | -0.076 |
| 27 | -0.412 | 39 | -0.319 |
| 28 | +0.346 | 40 | +0.439 |
| 29 | +0.104 | 41 | +0.197 |
| 30 | -0.139 | 42 | -0.045 |
| 31 | -0.381 | 43 | -0.287 |
| 32 | +0.377 | 44 | +0.470 |
| 33 | +0.135 | 45 | +0.228 |
| 34 | -0.107 | 46 | -0.014 |
| 35 | -0.350 | 47 | -0.256 |
| 36 | +0.408 | 48 | +0.502 |

The part of Nutation, which depends on the sun's longitude, I have inserted by itself in Table III. For as the unknown quantity i' does not influence the values of the two parts of Nutation, depending on \odot and α , in the same proportion, it was necessary to compute each part separately. If we denote the part depending on α by α , and that depending on \odot by α' , then the amount of the quantities taken from Tables II. and III. is equal to $\alpha + \alpha'$; and if the effect of i' be added thereto, it is equal to $\alpha + \alpha' + (\alpha + 2\alpha') i'$.

The sun's longitudes used in computing α' , and which have also been used in computing the Aberration, were communicated to me through the kindness of professor Bessel.

Table of the Sun's Longitude.

| | 1730. | 1750. | | 1730. | 1750. |
|---------|----------------|---------------|--|---------|-----------------|
| Jan. 0 | 280° 3' 49".69 | 280° 3' 7".45 | | July 9 | 106° 29' 24".43 |
| 10 | 290 13 42.39 | 290 13 0.18 | | 19 | 116 0 15.47 |
| 20 | 300 22 50.90 | 300 22 10.04 | | 29 | 125 32 5.53 |
| 30 | 310 30 39.19 | 310 30 0.95 | | Aug. 8 | 135 5 24.78 |
| Feb. 9 | 320 36 34.17 | 320 35 59.72 | | 18 | 144 40 41.26 |
| 19 | 330 40 6.80 | 330 39 37.16 | | 28 | 154 18 20.25 |
| Mar. 1 | 340 40 52.93 | 340 40 28.97 | | Sept. 7 | 163 58 43.62 |
| 11 | 350 38 34.16 | 350 38 16.54 | | 17 | 173 42 8.98 |
| 21 | 0 32 58.11 | 0 32 47.29 | | 27 | 183 28 49.22 |
| 31 | 10 23 58.58 | 10 23 54.81 | | Oct. 7 | 193 18 51.80 |
| Apr. 10 | 20 11 35.61 | 20 11 38.93 | | 17 | 203 12 18.44 |
| 20 | 29 55 55.05 | 29 56 5.29 | | 27 | 213 9 4.78 |
| 30 | 39 37 8.36 | 39 37 25.15 | | Nov. 6 | 223 9 0.15 |
| May 10 | 49 15 31.88 | 49 15 54.69 | | 16 | 223 11 47.81 |
| 20 | 58 51 26.27 | 58 51 54.42 | | 26 | 243 17 5.18 |
| 30 | 68 25 15.97 | 68 25 48.62 | | Dec. 6 | 253 24 24.57 |
| June 9 | 77 57 28.32 | 77 58 4.54 | | 16 | 263 33 13.86 |
| 19 | 87 28 32.90 | 87 29 11.68 | | 26 | 273 42 57.80 |
| 29 | 96 59 0.95 | 96 59 41.22 | | 36 | 283 52 59.01 |

(3) The formula for the effect of Aberration in declination is the well known one^d,

$$20''.255 \{ \sin. \alpha \sin. \delta \cos. \omega - \cos. \delta \sin. \omega \} \cos. \odot - 20''.255 \cos. \alpha \sin. \delta \sin. \odot;$$

which also in this case, where the amount of the constant of Aberration is not supposed to be known, but is to be determined from the observations, must be multiplied by a factor containing an unknown quantity; which factor I will denote by $1 + \kappa$.

Table IV. of the Appendix, relating to this point, has been computed by assuming values of α , δ , ω for 1730 as well as 1750; and the variation of Aberration in 10 years, given in the same table, was obtained by comparing both results together. On this subject also I need not enter into further detail, as both the explanation and example in the *Tab. Reg.* are exactly to the same effect.

Let the Aberration taken from the table be denoted by β , then, when corrected by being multiplied by $1 + \kappa$, it becomes $\beta + \beta\kappa$. Therefore, in order to reduce an observed polar distance to its value, at the beginning of 1730, cleared of Precession, Proper Motion, Aberration, and Nutation, we must apply thereto,

$$\text{Precession} + \text{Proper Motion} + \alpha + \alpha' + \beta + (\alpha - 2\alpha') i' + \beta\kappa.$$

Let us denote the mean value of the same, such as all the observations of a star afford, when the proper values of i' and κ are assumed, by $P - x$, where P is a quantity near the truth, and x a small correction to be deduced from observation; then the reduced observation gives an equation,

$$0 = \text{observed pol. dist.} + \text{Prec.} + \text{Prop. Mot.} + \\ \alpha + \alpha' + \beta - P + x + (\alpha + 2\alpha') i' + \beta\kappa;$$

or, expressed more briefly,

$$0 = n + x + ai' + b\kappa.$$

I have, from every individual observation, obtained equations of this form, which are contained in Table V. Since I have considered the lunar and solar Nutation, as well as the Aberration, separately, it was not necessary to introduce the coefficients of i' and κ into the tables at all.

III.

Having given the formulæ and quantities used in reducing the observations, I proceed to explain how I combined the equations obtained from them, in order to deduce the two final equations, from which there results the most probable amount of both corrections, for the assumed constants of Aberration and Nutation.

A closer examination of the series of observations left by Bradley shews it to be extremely accurate, and that the observations themselves, as the result proves,

^d *Tab. Reg.* [27.]

are very accordant one with another. Even in the present day a series of observations better adapted to the object in view could not be made. Perhaps the only alteration to be desired is, that the property of reversion had been given to the sector, whereby we might have been altogether independent of any variation in the line of collimation. We should, however, form an erroneous judgment, were we to suppose the sector's continuance in one position to have been productive of uncertainty in the results; partly, because, during the twenty years through which the observations were carried on, there is scarcely one remarkable alteration in the line of collimation; and partly, because Bradley used to observe stars differing from each other 180° in R. A. in order to detect any important effect, which might be produced by change of position of the instrument. For in stars thus situated opposite to each other, the corrections both for Aberration and Nutation have contrary signs.

In order to determine the variation of collimation, I have divided the whole time including the observations into four periods, and have assumed the error of collimation during each of these periods as constant. These periods are as follows:

| |
|------------------------------|
| 1st period from 1727 to 1731 |
| 2d ————— 1732 — 1735 |
| 3d ————— 1736 — 1740 |
| 4th ————— 1741 — 1747 |

Let the variation which the line of collimation underwent in the last three periods, from the position which it held during the first period, be denoted by y, y', y'' , then from each observation, according as it was made in the 1st, 2d, 3d, or 4th periods, there results an equation of this form:

$$\begin{aligned} 0 &= n_1 + a_1 i + b_1 \kappa + x \\ 0 &= n_1 + a_1 i + b_1 \kappa + x + y \\ 0 &= n_1 + a_1 i + b_1 \kappa + x + y' \\ 0 &= n_1 + a_1 i + b_1 \kappa + x + y'' \end{aligned}$$

Now from all the preceding observations (except such as Bradley himself marked as doubtful) I have deduced equations, by the method of *least squares*, for determining the six unknown quantities i, κ, x, y, y', y'' , which are as follows:

$$\begin{aligned} 0 &= (n_1) + (m_1) x + (m_1) y + (m_1) y' + (m_1) y'' + (a_1) i + (b_1) \kappa \\ 0 &= (n_2) + (m_2) x + (m_2) y — — — + (a_2) i + (b_2) \kappa \\ 0 &= (n_3) + (m_3) x — — — + (m_3) y' — — — + (a_3) i + (b_3) \kappa \\ 0 &= (n_4) + (m_4) x — — — + (m_4) y'' + (a_4) i + (b_4) \kappa \\ 0 &= (an) + (a) x + (a_1) y + (a_1) y' + (a_1) y'' + (aa) i + (ab) \kappa \\ 0 &= (bn) + (b) x + (b_1) y + (b_1) y' + (b_1) y'' + (ab) i + (bb) \kappa \end{aligned}$$

In which the notation, which, after the example of Gauss, is usually adopted to express the sums generally, if it appear with an index subscribed, refers to the

sums of the observations made within each of the periods specified by such index; but if there be no index, then it refers to the whole of the observations.

I have computed the values of all the coefficients occurring in these equations from the observations of every individual star, and I give them in order in the following table:

| Names of Stars. | Periods. | (n) | (a) | (b) | (an) | (bn) | (ab) | (aa) | (bb) | (nn) | (m) |
|--------------------------------|-------------------|---------|-----------|-----------|-----------|----------|-----------|-----------|----------|----------|-------|
| α Aurigæ | I. | + 4.24 | + 1159.20 | - 199.00 | + 49.33 | + 264.32 | - 1182.66 | 8953.11 | 6856.20 | 254.15 | 153 |
| | II. | + 26.73 | + 11.71 | - 46.26 | + 32.92 | + 104.16 | + 389.61 | 425.56 | 1530.66 | 78.69 | 32 |
| | III. | + 2.00 | - 89.80 | + 68.33 | - 17.89 | + 34.16 | - 474.07 | 627.29 | 639.93 | 35.47 | 13 |
| | IV. | + 10.28 | - 15.26 | + 20.85 | - 37.39 | + 62.16 | - 90.50 | 66.46 | 196.25 | 30.99 | 4 |
| | Sums | + 43.25 | + 1065.85 | - 156.08 | + 26.97 | + 464.80 | - 1357.62 | 9072.42 | 9223.04 | 399.30 | 202 |
| ψ Ursæ maj. δ Herculis | I. | + 6.06 | + 5.17 | - 98.19 | + 14.44 | - 167.90 | - 146.79 | 25.35 | 2026.48 | 30.32 | 21 |
| | I. | + 24.59 | - 450.26 | + 265.41 | - 187.08 | + 134.12 | - 1766.63 | 3302.06 | 15165.21 | 107.35 | 64 |
| | I. | - 12.60 | + 266.21 | + 140.37 | - 91.42 | - 111.39 | + 722.90 | 2055.39 | 2734.76 | 37.80 | 35 |
| α Persei | I. | - 34.31 | + 408.53 | + 30.13 | - 271.08 | - 2.81 | + 276.33 | 3186.03 | 4886.80 | 63.35 | 53 |
| | II. | - 0.05 | + 24.71 | + 35.07 | + 8.34 | + 27.04 | + 358.16 | 167.82 | 900.63 | 1.73 | 7 |
| | III. | + 3.01 | - 29.60 | + 44.57 | - 22.23 | + 33.18 | - 329.82 | 219.05 | 496.81 | 3.25 | 4 |
| | Sums | - 31.35 | + 403.64 | + 109.77 | - 284.97 | + 57.41 | + 304.67 | 3572.90 | 5284.24 | 68.33 | 64 |
| | 46 Aurigæ | I. | + 16.29 | + 158.00 | + 48.23 | + 130.38 | + 81.56 | + 364.90 | 1272.00 | 986.71 | 22.30 | 20 |
| η Ursæ maj. | I. | - 26.39 | - 516.86 | + 32.15 | + 187.08 | + 3.34 | - 2335.98 | 3219.76 | 13230.37 | 52.55 | 85 |
| | II. | - 1.84 | - 109.19 | + 217.01 | - 12.80 | - 64.27 | - 271.75 | 616.44 | 6296.71 | 16.82 | 28 |
| | III. | - 30.25 | + 111.30 | + 238.66 | - 190.47 | - 388.88 | + 1414.02 | 692.69 | 3544.54 | 79.27 | 19 |
| | IV. | + 0.69 | + 42.23 | + 191.50 | - 5.16 | + 6.41 | + 528.62 | 520.16 | 2345.79 | 8.02 | 16 |
| | Sums | - 57.79 | - 472.52 | + 679.32 | - 21.35 | - 443.40 | - 665.09 | 4049.05 | 25417.41 | 156.66 | 148 |
| η Aurigæ | I. | - 0.94 | + 146.12 | + 90.09 | - 11.09 | - 35.90 | + 741.50 | 1231.44 | 1018.55 | 11.85 | 17 |
| | II. | + 0.64 | + 6.03 | + 29.33 | + 0.90 | + 5.24 | + 57.98 | 35.73 | 287.00 | 0.16 | 3 |
| | III. | + 0.34 | - 5.34 | + 9.59 | - 1.82 | + 3.26 | - 52.40 | 28.52 | 91.97 | 0.12 | 1 |
| | Sums | + 0.04 | + 146.81 | + 129.01 | - 12.01 | - 27.40 | + 750.08 | 1295.69 | 1397.52 | 12.13 | 21 |
| | γ Draconis | I. | + 26.45 | - 1138.62 | + 1021.45 | - 215.96 | + 553.88 | - 6226.26 | 8342.52 | 39927.15 | 77.61 | 166 |
| 35 Camelopardi | II. | + 7.78 | + 91.57 | + 514.62 | - 54.91 | + 95.97 | + 1656.09 | 700.78 | 12819.94 | 38.24 | 48 |
| | III. | - 38.57 | + 319.39 | + 488.37 | - 298.08 | - 490.28 | + 3953.89 | 2480.95 | 11845.41 | 70.40 | 42 |
| | IV. | + 1.62 | - 27.54 | + 586.21 | - 14.77 | + 26.24 | - 743.87 | 564.06 | 12303.46 | 15.78 | 35 |
| | Sums | - 2.72 | - 755.20 | + 2510.65 | - 583.72 | + 185.81 | - 1360.15 | 12088.31 | 76895.96 | 202.03 | 291 |
| | τ Persei | I. | + 14.48 | + 239.54 | + 48.70 | + 89.29 | + 53.96 | + 519.32 | 1843.79 | 2071.26 | 29.93 | 32 |
| γ Persei | II. | + 0.39 | + 2.33 | + 8.60 | + 0.91 | + 3.35 | + 20.03 | 5.43 | 73.96 | 0.15 | 1 |
| | III. | + 1.07 | - 28.72 | + 34.85 | - 3.48 | + 8.43 | - 203.49 | 171.38 | 255.90 | 1.82 | 5 |
| | IV. | + 1.90 | + 7.12 | + 9.52 | + 13.53 | + 18.09 | + 67.78 | 50.69 | 90.63 | 3.61 | 1 |
| | Sums | + 17.84 | + 220.27 | + 101.67 | + 100.25 | + 83.83 | + 403.64 | 2071.29 | 2491.75 | 35.51 | 39 |
| | I. | + 10.32 | + 271.75 | + 216.62 | + 49.33 | - 45.95 | + 1648.70 | 1929.25 | 4170.36 | 46.77 | 39 |
| γ Persei | II. | + 0.82 | + 36.04 | + 88.62 | + 2.17 | + 9.93 | + 459.49 | 201.86 | 1123.12 | 1.53 | 7 |
| | III. | + 4.25 | - 37.58 | - 0.09 | - 32.77 | + 53.04 | - 478.28 | 282.55 | 812.14 | 9.82 | 5 |
| | Sums | + 15.39 | + 270.21 | + 305.15 | + 18.73 | + 17.02 | + 1629.88 | 2413.66 | 6105.62 | 58.12 | 51 |
| | I. | + 4.46 | + 291.81 | + 321.07 | + 32.63 | + 96.99 | + 1623.45 | 2616.15 | 4750.53 | 33.40 | 40 |
| | II. | + 3.67 | + 28.99 | + 63.93 | + 20.36 | + 47.30 | + 370.72 | 171.57 | 817.62 | 4.07 | 5 |
| | III. | - 4.17 | - 45.16 | + 75.33 | + 9.27 | - 52.11 | - 566.85 | 339.96 | 946.67 | 5.51 | 6 |
| | Sums | + 3.96 | + 275.64 | + 460.33 | + 62.26 | + 92.18 | + 1427.32 | 3127.68 | 6514.82 | 42.98 | 51 |

REDUCTION OF

| Names of Stars. | Periods. | (n) | (a) | (b) | (an) | (bn) | (ab) | (aa) | (bb) | (nn) | (m) |
|--------------------|----------------------|----------|----------|-----------|----------|-----------|-----------|----------|----------|--------|-----|
| β Draconis | I. | + 128.05 | - 992.56 | + 781.99 | - 909.61 | + 235.13 | - 4883.45 | 7522.84 | 34079.93 | 203.41 | 137 |
| | II. | + 25.49 | + 68.33 | + 592.10 | + 99.68 | + 208.17 | + 1198.02 | 621.99 | 12162.93 | 44.21 | 42 |
| | III. | + 43.27 | + 239.03 | + 393.07 | + 340.91 | + 489.23 | + 3272.65 | 1982.57 | 9395.83 | 71.06 | 30 |
| | IV. | + 9.48 | - 16.53 | + 521.47 | + 52.91 | + 96.86 | - 388.28 | 585.37 | 11339.79 | 27.21 | 31 |
| | Sums | + 206.29 | - 701.73 | + 2288.63 | - 416.11 | + 1029.39 | - 801.06 | 10712.77 | 66978.48 | 345.89 | 240 |
| | λ Cassiopeæ | - 16.91 | + 111.85 | + 430.27 | - 68.26 | - 235.90 | + 1716.96 | 493.97 | 6728.78 | 23.07 | 31 |
| | II. | + 1.40 | + 25.30 | + 86.41 | + 2.24 | + 21.12 | + 357.18 | 121.43 | 1254.45 | 4.33 | 6 |
| | III. | - 0.47 | - 11.74 | + 29.24 | + 2.43 | - 8.14 | - 171.56 | 68.94 | 427.84 | 4.70 | 2 |
| δ Aurigæ | Sums | - 15.98 | + 125.41 | + 545.92 | - 63.59 | - 222.92 | + 1902.58 | 684.34 | 8411.07 | 32.10 | 39 |
| | I. | - 1.84 | + 189.24 | - 60.91 | - 14.54 | + 21.73 | + 524.81 | 1411.96 | 2255.45 | 19.20 | 26 |
| | II. | - 1.81 | - 3.23 | + 9.16 | + 5.84 | + 16.57 | - 29.59 | 10.43 | 83.91 | 3.28 | 1 |
| | III. | + 12.73 | - 32.34 | + 40.41 | - 82.60 | + 95.08 | - 265.59 | 210.31 | 342.59 | 33.44 | 5 |
| | IV. | + 7.85 | + 3.30 | + 18.54 | + 16.64 | + 73.52 | + 42.82 | 66.17 | 174.33 | 31.04 | 2 |
| | Sums | + 16.93 | + 156.97 | + 7.20 | - 74.66 | + 206.90 | + 272.45 | 1698.87 | 2856.28 | 86.96 | 34 |
| | α Cassiopeæ | + 0.79 | + 357.43 | + 341.16 | - 53.10 | - 240.85 | + 1489.99 | 1661.52 | 15589.94 | 79.63 | 88 |
| | II. | + 0.23 | + 33.50 | + 9.14 | - 1.83 | - 14.30 | + 30.95 | 175.17 | 1449.96 | 4.44 | 7 |
| γ Ursæ maj. | III. | - 1.45 | - 7.70 | + 60.93 | - 0.96 | - 21.96 | - 114.97 | 82.91 | 928.46 | 1.43 | 4 |
| | IV. | + 3.01 | - 3.13 | - 16.38 | - 8.69 | - 29.25 | + 105.46 | 49.74 | 276.28 | 5.58 | 2 |
| | Sums | + 2.58 | + 380.10 | + 394.85 | - 64.58 | - 306.36 | + 1511.43 | 1969.34 | 18244.64 | 91.06 | 101 |
| | I. | + 6.05 | - 115.22 | + 102.95 | - 8.86 | + 116.98 | - 630.14 | 349.61 | 7823.05 | 46.22 | 50 |
| | III. | - 1.57 | + 1.07 | + 11.15 | + 3.01 | - 6.05 | + 21.72 | 22.95 | 73.25 | 1.89 | 2 |
| | IV. | + 6.67 | + 35.35 | + 61.21 | + 32.92 | + 99.65 | + 451.72 | 258.10 | 943.48 | 18.57 | 8 |
| | Sums | + 11.15 | - 78.80 | + 175.31 | + 27.07 | + 210.58 | - 156.70 | 630.66 | 8839.78 | 66.68 | 60 |
| ζ Ursæ maj. | I. | - 17.08 | - 414.46 | + 257.22 | + 105.13 | + 176.53 | - 1918.43 | 2328.44 | 13522.90 | 63.63 | 76 |
| | II. | - 7.61 | - 90.79 | + 123.50 | + 50.11 | + 219.82 | - 111.20 | 501.95 | 4949.63 | 31.91 | 21 |
| | III. | - 8.07 | + 67.07 | + 159.75 | - 45.62 | - 69.85 | + 851.59 | 374.50 | 2370.73 | 53.76 | 13 |
| | IV. | + 30.98 | + 59.18 | + 177.72 | + 164.21 | + 375.00 | + 795.78 | 508.68 | 2254.86 | 82.35 | 15 |
| | Sums | - 1.78 | - 379.00 | + 718.19 | + 273.83 | + 701.50 | - 382.26 | 3713.57 | 23098.12 | 231.65 | 125 |
| | ξ Draconis | + 6.46 | - 371.09 | + 398.53 | - 24.13 | - 309.52 | - 2462.40 | 2685.54 | 13045.07 | 108.07 | 55 |
| 18 Camelopardi | I. | - 3.38 | + 193.96 | - 5.09 | - 15.84 | + 116.16 | - 53.82 | 1571.01 | 2463.02 | 43.14 | 25 |
| | III. | + 3.08 | - 30.28 | + 48.43 | - 21.38 | + 24.04 | - 292.65 | 187.88 | 478.15 | 7.03 | 5 |
| | Sums | - 0.30 | + 163.68 | + 43.34 | - 37.22 | + 140.20 | - 346.47 | 1758.89 | 2941.17 | 50.17 | 30 |
| | ϵ Ursæ maj. | - 29.59 | - 340.66 | + 164.36 | + 140.59 | + 154.03 | - 1071.99 | 1646.33 | 14145.01 | 72.20 | 75 |
| | II. | - 15.33 | - 102.22 | + 111.98 | + 88.86 | + 201.74 | - 242.84 | 559.38 | 4643.90 | 50.48 | 21 |
| | III. | - 8.52 | + 19.62 | + 36.08 | - 34.20 | - 58.12 | + 138.28 | 86.72 | 268.65 | 16.65 | 5 |
| | IV. | + 0.48 | + 60.06 | + 162.05 | + 45.50 | + 146.64 | + 868.84 | 545.40 | 2280.96 | 52.85 | 17 |
| | Sums | - 52.96 | - 336.20 | + 474.47 | + 240.75 | + 444.29 | - 307.71 | 2837.83 | 21338.52 | 192.18 | 118 |
| β Cassiopeæ | I. | + 30.92 | + 259.63 | + 340.69 | + 156.21 | + 811.78 | + 963.89 | 1036.72 | 17251.88 | 117.05 | 85 |
| | II. | + 3.57 | + 35.33 | + 39.94 | + 19.46 | + 86.70 | + 232.83 | 182.46 | 1682.25 | 7.26 | 7 |
| | III. | + 5.78 | - 9.96 | + 77.58 | - 21.32 | + 90.49 | - 153.08 | 105.96 | 1204.35 | 10.67 | 5 |
| | IV. | + 7.26 | - 4.95 | + 8.32 | - 6.27 | + 16.70 | - 72.79 | 57.47 | 94.89 | 29.38 | 2 |
| | Sums | + 47.53 | + 280.05 | + 466.53 | + 148.08 | + 1005.67 | + 970.85 | 1382.61 | 20233.37 | 164.36 | 99 |
| | β Ursæ maj. | + 21.29 | - 7.13 | + 2.88 | - 7.73 | + 22.88 | - 320.95 | 77.65 | 5314.54 | 28.38 | 38 |
| | II. | + 2.50 | - 18.87 | + 2.02 | - 13.97 | - 0.09 | - 15.46 | 121.31 | 4.76 | 3.26 | 3 |
| | Sums | + 23.79 | - 26.00 | + 4.90 | - 21.70 | + 22.79 | - 336.41 | 198.96 | 5319.30 | 31.64 | 41 |

According to this table, therefore, all the observations of any star, α Aurigæ for example, give the following equations :

$$\begin{aligned}
 0 = & + 43.25 + 202.00 x + 32 y + 13 y' + 4 y'' + 1065.85 i - 156.08 \kappa \\
 0 = & + 26.73 + 32.00 x + 32 y \dots \dots + 11.71 i - 46.26 \kappa \\
 0 = & + 2.00 + 13.00 x \dots + 13 y' \dots - 89.80 i + 68.33 \kappa \\
 0 = & + 10.28 + 4.00 x \dots \dots + 4 y'' - 15.26 i + 20.85 \kappa \\
 0 = & + 26.97 + 1065.85 x + 11.71 y - 89.80 y' - 15.26 y'' + 9072.42 i - 1357.62 \kappa \\
 0 = & + 464.80 - 156.08 x - 46.26 y + 68.33 y' + 20.85 y'' - 1357.62 i + 9223.04 \kappa
 \end{aligned}$$

All the other stars give equations similar to these. The unknown quantity x , which occurs in these equations, is different for each star, and must be eliminated from the remaining equations by means of the first ; whence we have for each star the following expressions :

α Aurigæ.

$$\begin{aligned}
 0 = & + 19.88 + 26.93 y - 2.06 y' - 0.63 y'' - 157.14 i - 21.53 \kappa \\
 0 = & - 0.78 - 2.06 y + 12.16 y' - 0.26 y'' - 158.39 i + 78.37 \kappa \\
 0 = & + 9.42 - 0.63 y - 0.26 y' + 3.92 y'' - 36.37 i + 23.94 \kappa \\
 0 = & - 201.24 - 157.14 y - 158.39 y' - 36.37 y'' + 3448.57 i - 534.07 \kappa \\
 0 = & + 498.22 - 21.53 y + 78.37 y' + 23.94 y'' - 534.07 i + 9102.44 \kappa
 \end{aligned}$$

ψ Ursæ maj.

$$\begin{aligned}
 0 = & + 12.95 \dots \dots \dots + 24.08 i - 122.62 \kappa \\
 0 = & - 139.56 \dots \dots \dots - 122.62 i + 1567.37 \kappa
 \end{aligned}$$

ι Herculis.

$$\begin{aligned}
 0 = & - 14.08 \dots \dots \dots + 134.42 i + 100.64 \kappa \\
 0 = & + 32.14 \dots \dots \dots + 100.64 i + 14064.54 \kappa
 \end{aligned}$$

δ Persei.

$$\begin{aligned}
 0 = & + 4.42 \dots \dots \dots + 30.57 i - 344.81 \kappa \\
 0 = & - 60.86 \dots \dots \dots - 344.81 i + 2171.78 \kappa
 \end{aligned}$$

α Persei.

$$\begin{aligned}
 0 = & + 3.38 + 6.24 y - 0.44 y' \dots \dots - 19.41 i + 23.06 \kappa \\
 0 = & + 4.97 - 0.44 y + 3.75 y' \dots \dots - 54.83 i + 37.71 \kappa \\
 0 = & - 87.25 - 19.44 y - 54.83 y' \dots \dots + 1027.25 i - 387.63 \kappa \\
 0 = & + 111.18 + 23.06 y + 37.71 y' \dots \dots - 387.63 i + 5095.97 \kappa
 \end{aligned}$$

46 Aurigæ.

$$\begin{aligned}
 0 = & + 1.69 \dots \dots \dots + 23.77 i - 16.13 \kappa \\
 0 = & + 42.28 \dots \dots \dots - 16.13 i + 870.40 \kappa
 \end{aligned}$$

η Ursæ maj.

$$\begin{aligned}
 0 = & + 9.09 + 22.70 y - 3.60 y' - 3.03 y'' - 19.79 i + 102.11 \kappa \\
 0 = & - 22.83 - 3.60 y + 16.56 y' - 2.05 y'' + 171.96 i + 160.69 \kappa \\
 0 = & + 6.94 - 3.03 y - 2.05 y' + 14.27 y'' + 93.31 i + 53.84 \kappa \\
 0 = & - 205.85 - 19.79 y + 171.96 y' + 93.31 y'' + 2540.43 i + 1273.87 \kappa \\
 0 = & - 206.26 + 102.11 y + 160.69 y' + 53.84 y'' + 1273.87 i + 22925.35 \kappa
 \end{aligned}$$

REDUCTION OF

9 *Aurigæ.*

$$\begin{aligned}
 0=+ & 0.03 + 2.57 y - 0.14 y' \dots - 14.94 i + 10.90 \kappa \\
 0=+ & 0.34 - 0.14 y + 0.95 y' \dots - 12.33 i + 3.45 \kappa \\
 0=- & 12.29 - 14.94 y - 12.33 y' \dots + 269.33 i - 151.82 \kappa \\
 0=- & 27.65 + 10.90 y + 3.45 y' \dots - 151.82 i + 604.98 \kappa
 \end{aligned}$$

γ *Draconis.*

$$\begin{aligned}
 0=+ & 8.23 + 40.08 y - 6.93 y' - 5.77 y'' + 216.14 i + 100.49 \kappa \\
 0=- & 38.18 - 6.93 y + 35.94 y' - 5.05 y'' + 428.39 i + 126.00 \kappa \\
 0=+ & 1.95 - 5.77 y - 5.05 y' + 30.79 y'' + 63.29 i + 284.23 \kappa \\
 0=- & -590.79 + 216.14 y + 428.39 y' + 63.29 y'' + 10129.44 i + 5155.56 \kappa \\
 0=+ & 209.28 + 100.49 y + 126.00 y' + 284.23 y'' + 5155.56 i + 55234.92 \kappa
 \end{aligned}$$

35 *Camelopardi.*

$$\begin{aligned}
 0=- & 0.07 + 0.97 y - 0.13 y' - 0.03 y'' - 3.32 i + 5.99 \kappa \\
 0=- & 1.22 - 0.13 y + 4.36 y' - 0.13 y'' - 56.96 i + 21.82 \kappa \\
 0=+ & 1.44 - 0.03 y - 0.13 y' + 0.97 y'' + 1.47 i + 6.91 \kappa \\
 0=- & 0.51 - 3.32 y - 56.96 y' + 1.47 y'' + 827.23 i - 170.59 \kappa \\
 0=+ & 37.32 + 5.99 y + 21.82 y' + 6.91 y'' - 170.59 i + 2226.71 \kappa
 \end{aligned}$$

τ *Persei.*

$$\begin{aligned}
 0=- & 1.29 + 6.04 y - 0.69 y' \dots - 1.05 i + 46.74 \kappa \\
 0=+ & 2.74 - 0.69 y + 4.51 y' \dots - 64.07 i - 30.01 \kappa \\
 0=- & -62.81 - 1.05 y - 64.07 y' \dots + 981.96 i + 13.10 \kappa \\
 0=- & -75.06 + 46.74 y - 30.01 y' \dots + 13.10 i + 4279.83 \kappa
 \end{aligned}$$

γ *Persei.*

$$\begin{aligned}
 0=+ & 3.28 + 4.51 y - 0.59 y' \dots + 1.97 i + 18.80 \kappa \\
 0=- & 4.64 - 0.59 y + 5.29 y' \dots - 77.59 i + 21.17 \kappa \\
 0=+ & 40.86 + 1.97 y - 77.59 y' \dots + 1637.95 i - 1060.62 \kappa \\
 0=+ & 56.44 + 18.80 y + 21.17 y' \dots - 1060.62 i + 2359.82 \kappa
 \end{aligned}$$

β *Draconis.*

$$\begin{aligned}
 0=- & 10.61 + 34.65 y - 5.25 y' - 5.43 y'' + 191.13 i + 193.16 \kappa \\
 0=+ & 17.48 - 5.25 y + 26.25 y' - 3.88 y'' + 326.75 i + 108.11 \kappa \\
 0=- & 17.17 - 5.43 y - 3.88 y' + 27.00 y'' + 74.11 i + 218.02 \kappa \\
 0=+ & 187.06 + 191.13 y + 326.75 y' + 74.11 y'' + 8661.01 i + 5864.23 \kappa \\
 0=- & -930.05 + 193.16 y + 108.11 y' + 218.02 y'' + 5864.23 i + 45325.52 \kappa
 \end{aligned}$$

λ *Cassiopeæ.*

$$\begin{aligned}
 0=+ & 3.86 + 5.08 y - 0.31 y' \dots + 6.01 i + 2.42 \kappa \\
 0=+ & 0.35 - 0.31 y + 1.90 y' \dots - 18.17 i + 1.24 \kappa \\
 0=- & -12.20 + 6.01 y - 18.17 y' \dots + 281.07 i + 147.08 \kappa \\
 0=+ & 0.77 + 2.42 y + 1.24 y' \dots + 147.08 i + 769.24 \kappa
 \end{aligned}$$

δ *Aurigæ.*

$0=- 2.31 + 0.97 y - 0.15 y' - 0.06 y'' - 7.85 i + 8.95 \kappa$
 $0=+ 10.24 - 0.15 y - 4.26 y' - 0.29 y'' - 55.42 i + 39.35 \kappa$
 $0=+ 6.85 - 0.06 y - 0.29 y' + 1.88 y'' - 5.93 i + 18.12 \kappa$
 $0=- 152.83 - 7.85 y - 55.42 y' - 5.93 y'' + 974.17 i + 239.21 \kappa$
 $0=+ 203.31 + 8.95 y + 39.35 y' + 18.12 y'' + 239.21 i + 2854.75 \kappa$

 α *Cassiopeæ.*

$0=+ 0.06 + 6.51 y - 0.28 y' - 0.14 y'' + 7.16 i - 18.23 \kappa$
 $0=- 1.55 - 0.28 y + 3.84 y' - 0.08 y'' - 22.75 i + 45.29 \kappa$
 $0=+ 2.96 - 0.14 y - 0.08 y' + 1.96 y'' - 10.66 i - 24.20 \kappa$
 $0=- 74.03 + 7.16 y - 22.75 y' - 10.66 y'' + 538.87 i + 25.43 \kappa$
 $0=- 316.17 - 18.23 y + 45.29 y' - 24.20 y'' + 25.43 i + 16700.98 \kappa$

 γ *Ursæ maj.*

$0=- 1.94 \dots + 1.93 y' - 0.27 y'' + 3.70 i + 5.31 \kappa$
 $0=- 8.20 \dots - 0.27 y' + 6.93 y'' + 45.86 i + 37.84 \kappa$
 $0=+ 41.71 \dots + 3.70 y' + 45.86 y'' + 527.17 i + 37.54 \kappa$
 $0=+ 178.00 \dots + 5.31 y' + 37.84 y'' + 37.54 i + 8327.54 \kappa$

 ζ *Ursæ maj.*

$0=- 7.31 + 17.47 y - 2.18 y' - 2.52 y'' - 27.12 i + 2.84 \kappa$
 $0=- 7.88 - 2.18 y + 11.65 y' - 1.56 y'' + 106.48 i + 85.06 \kappa$
 $0=+ 31.19 - 2.52 y - 1.56 y' + 13.20 y'' + 104.66 i + 91.54 \kappa$
 $0=+ 268.43 - 27.12 y + 106.48 y' + 104.66 y'' + 2564.44 i + 1795.29 \kappa$
 $0=+ 711.73 + 2.84 y + 85.06 y' + 91.54 y'' + 1795.29 i + 18971.72 \kappa$

 ξ *Draconis.*

$0=+ 19.46 \dots \dots \dots + 181.72 i + 226.54 \kappa$
 $0=- 356.33 \dots \dots \dots + 226.54 i + 10157.33 \kappa$

18 *Camelopardi.*

$0=+ 3.13 \dots + 4.17 y \dots - 57.55 i + 41.21 \kappa$
 $0=- 35.58 \dots - 57.55 y \dots + 866.25 i - 582.88 \kappa$
 $0=+ 140.63 \dots + 41.21 y \dots - 582.88 i + 2878.56 \kappa$

 ϵ *Ursæ maj.*

$0=- 5.90 + 17.26 y - 0.89 y' - 3.03 y'' - 42.39 i + 27.54 \kappa$
 $0=- 6.28 - 0.89 y + 4.79 y' - 0.72 y'' + 33.87 i + 15.98 \kappa$
 $0=+ 8.11 - 3.03 y - 0.72 y' + 14.55 y'' + 108.50 i + 93.69 \kappa$
 $0=+ 89.86 - 42.39 y + 33.87 y' + 108.50 y'' + 1879.93 i + 1044.13 \kappa$
 $0=+ 657.24 + 27.54 y + 15.98 y' + 93.69 y'' + 1044.13 i + 19430.69 \kappa$

 β *Cassiopeæ.*

$0=+ 0.21 + 6.51 y - 0.35 y' - 0.14 y'' + 15.50 i + 6.95 \kappa$
 $0=+ 3.35 - 0.35 y + 4.75 y' - 0.10 y'' - 24.13 i + 54.02 \kappa$
 $0=+ 6.30 - 0.14 y - 0.10 y' + 1.96 y'' - 10.62 i - 1.11 \kappa$
 $0=+ 13.41 + 15.50 y - 24.13 y' - 10.62 y'' + 587.88 i - 350.97 \kappa$
 $0=+ 781.69 + 6.95 y + 54.02 y' - 1.11 y'' - 350.97 i + 18034.92 \kappa$

$$\begin{array}{l}
 \beta \text{ Ursæ maj.} \\
 0=+ 0.76 + 2.78 y \quad \dots \quad \dots \quad - 16.97 i + 1.66 \kappa \\
 0=- 6.61 - 16.97 y \quad \dots \quad \dots \quad + 182.47 i - 333.30 \kappa \\
 0=+ 19.95 + 1.66 y \quad \dots \quad \dots \quad - 333.30 i + 5318.71 \kappa
 \end{array}$$

These equations for all the stars, being added together, give the following equations, indicating the most probable values of y, y', y'', i', κ :

$$\begin{array}{l}
 0=+ 21.29 + 201.27 y - 23.99 y' - 20.78 y'' + 127.90 i + 511.85 \kappa \\
 0=- 42.70 - 23.99 y + 183.54 y' - 14.39 y'' + 468.96 i + 814.75 \kappa \\
 (2) \quad 0=+ 49.79 - 20.78 y - 14.39 y' + 117.43 y'' + 427.62 i + 802.82 \kappa \\
 0=- 780.22 + 127.90 y + 468.96 y' + 427.62 y'' + 38319.88 i + 11867.18 \kappa \\
 0=+ 1568.24 + 511.85 y + 814.75 y' + 802.82 y'' + 11867.18 i + 269274.07 \kappa
 \end{array}$$

If from these we eliminate y, y', y'' , we have the two following equations for determining i' and κ :

$$\begin{array}{l}
 (3) \quad 0=- 858.50 + 34292.73 i + 4146.80 \kappa \\
 0=+ 1372.76 + 4146.80 i + 254099.40 \kappa
 \end{array}$$

and hence,

$$\begin{aligned}
 i' &= + 0.0257382 \\
 \kappa &= - 0.0058255.
 \end{aligned}$$

If we substitute these values in the expressions before given, viz.

$$i = -0''.069541 + 0''.930459 i,$$

and the Constant of Aberrat. = $20''.255 (1 + \kappa)$, then we have

$$i = -0.045593;$$

and consequently the formulæ for Nutation for the beginning of the year 1800 becomes,

$$\begin{aligned}
 \Delta L &= -17''.2152 \sin. \varpi + 0''.20730 \sin. 2 \varpi - 1''.26719 \sin. 2 \odot - 0''.20647 \sin. 2 \oplus \\
 \Delta \omega &= + 9.2080 \cos. \varpi - 0.08998 \cos. 2 \varpi + 0.55008 \cos. 2 \odot + 0.08963 \cos. 2 \oplus.
 \end{aligned}$$

and the Constant of Aberration = $20''.1371$.

In the same way I have obtained equations of conditions for i' and κ from observations of γ Draconis made by Bradley and Molyneux at Kew, and found

$$\begin{array}{l}
 0=+ 9.72 + 64.00 x - 553.04 i + 356.54 \kappa \\
 0=- 70.96 - 553.04 x + 4831.39 i - 2760.35 \kappa \\
 0=+ 47.01 + 356.54 x - 2760.35 i + 10825.15 \kappa
 \end{array}$$

and by eliminating x ,

$$\begin{array}{l}
 (4) \quad 0=+ 13.03 + 52.39 i + 320.65 \kappa \\
 0=- 7.14 + 320.65 i + 8838.85 \kappa
 \end{array}$$

As all these observations were made within the space of a year, they are but of little use in determining the Nutation (i); and if we were to deduce from them the value of i' as well as κ , we should obtain a value of the former with only a

small degree of accuracy. On the other hand, the value of κ , given by the second of the above equations, depends so little on the value of i' , that if we substitute the value of i' obtained from the observations at Wansted, which we have already discussed, we may arrive at as near an approximation to the value of κ , as if it were deduced independently from the observations at Kew. Accordingly, if we make $i' = 0.0257382$, the last equation becomes,

$$0 = +1.112 + 8838.85 \kappa;$$

and therefore,

$$\kappa = -0.0001258;$$

or the value of the Const. of Aberr. = $20''.2527$;

which so far agrees with the result obtained from the Wansted observations alone, that both indicate a diminution of the assumed Constant of Aberration.

The best method, of combining together the observations at Kew and at Wansted, is to add together the first and the last equations derived from both series of observations, and to solve them by means of these new equations containing both values. They are as follows:

$$\begin{aligned} 0 &= -845.47 + 34345.12 i' + 4467.45 \kappa \\ 0 &= +1365.62 + 4467.45 i' + 262938.25 \kappa \end{aligned}$$

which solved, give

$$i' = +0.025268;$$

or

$$i' = -0.046030$$

and

$$\kappa = -0.0056244.$$

We have then, as the combined result of the Kew and Wansted observations, for the formulæ for Nutation,

$$\Delta L = -17''.2076 \sin. \varpi + 0''.20720 \sin. 2 \varpi - 1''.26847 \sin. 2 \odot - 0''.20638 \sin. 2 \odot$$

$$\Delta \omega = +9.2040 \cos. \varpi - 0.08994 \cos. 2 \varpi + 0.55063 \cos. 2 \odot + 0.08959 \cos. 2 \odot$$

and Constant of Aberr. = $20''.1411$.

Having, in the manner thus explained, found the value of the Constant of Aberration, and the formulæ for Nutation, derived from the combined observations of Molyneux and Bradley, it remains for me now to ascertain the amount of the unknown quantities y, y', y'' , or the corrections which are to be applied to the observations, made in any one of the assumed periods, on account of any alteration in the line of collimation of the instrument.

By solution of equat. (2) I obtain the following values:

$$y = -0.1351$$

$$y' = +0.1821$$

$$y'' = -0.4798$$

We see then that, during the 20 years which include the observations, the line of collimation underwent only a slight alteration, and up to the third period we

may, without sensible error, assume the collimation as constant, or make y and $y' = 0$. It is only in the third period that a perceptible change seems to have taken place, for the greater part of the observations concurs in giving the same sign.

Lastly, by substituting these values, as well as those of i and κ deduced from equat. (3), I have deduced the value x for each of the following stars, by which to correct their assumed polar distances (P), and found them as follows:

| Names of Stars. | Assumed value of P . | x | Place of the Star by the Instrument at the beginning of 1730. |
|----------------------|---------------------------|--------|--|
| α Aurigæ | 44° 15' + 148" | -0.335 | 44° 17' 27" 665 |
| ψ Ursæ maj. | 44 0 + 65 | -0.322 | 44 1 4.678 |
| ι Herculis | 43 50 - 90 | -0.179 | 43 48 29.821 |
| δ Persei | 43 5 + 7 | +0.172 | 43 5 7.172 |
| α — | 41 5 + 71 | +0.341 | 41 6 11.341 |
| 46 Aurigæ | 40 35 + 24 | -1.004 | 40 35 22.996 |
| η Ursæ maj. | 39 15 + 189 | +0.551 | 39 18 9.551 |
| α Aurigæ | 38 45 + 93 | -0.135 | 38 46 32.865 |
| γ Draconis | 38 25 + 82 | +0.180 | 38 26 22.180 |
| 35 Camelopardi | 38 25 + 72 | -0.595 | 38 26 11.405 |
| τ Persei | 38 20 + 28 | -0.403 | 38 20 27.597 |
| γ — | 37 35 - 114 | -0.172 | 37 33 5.828 |
| β Draconis | 37 30 - 147 | -0.666 | 37 27 32.334 |
| λ Cassiopeæ | 36 55 + 99 | +0.419 | 36 56 39.419 |
| δ Aurigæ | 35 45 + 13 | -0.610 | 35 45 12.390 |
| α Cassiopeæ | 34 55 + 13 | -0.087 | 34 55 12.913 |
| γ Ursæ maj. | 34 45 + 95 | -0.077 | 34 46 34.923 |
| ζ — | 33 35 + 160 | +0.187 | 33 37 40.187 |
| ξ Draconis | 33 0 + 133 | +0.098 | 33 2 13.098 |
| 18 Camelopardi | 33 0 - 43 | -0.152 | 32 59 16.848 |
| ϵ Ursæ maj. | 32 20 + 143 | +0.631 | 32 22 23.631 |
| β Cassiopeæ | 32 20 - 81 | -0.515 | 32 18 28.485 |
| β Ursæ maj. | 32 15 - 360 | -0.553 | 32 8 59.447 |

IV.

Here the investigation which is the object of this Memoir might close, if the assumption on which it is based, viz. that the observations of all the stars employed possess an equal degree of certainty, needed no proof. It was convenient to conduct the investigation on this assumption, but it were unpardonable not to examine its accuracy, nor to avail ourselves of the result of such examination.

There can be no doubt that the observations of the different stars gave a mean error, greater in proportion to their zenith distance when they passed the meridian. This must necessarily be the case, partly, because Bradley has not given us the indications of the meteorological instruments, and we are therefore compelled to neglect the changes of refraction due to such indications; partly, because the

temperature of the upper and lower rooms, through which the Sector passed, could seldom or never have been the same; consequently the comparative length [*vergleichungsweise*] of the graduated arc to the radius must have been generally either too great or too small, and for want of observations of the temperature at different heights of the room, we are not in a situation to make allowance for it.

It would be wrong, therefore, to allow an equal weight to all the observations of the different stars.

In order to ascertain the mean error which they severally indicate, I have taken out the sum of the squares of the errors of each individual star, after the values of the unknown quantities $x, y, y', y'', i', \kappa$ (found in the last section) have been substituted. The following table contains these sums, and also the quotients after they have been divided by the number of the observations of each star respectively.

| Names of Stars. | Z. D. | No. of Obs. = m . | Sums of the Squares of the Errors = nn . | $\sqrt{\frac{n.n}{m}}$ |
|----------------------|-------|---------------------|--|------------------------|
| α Aurigæ | 5 48 | 202 | 384.08 | 1.3786 |
| ψ Ursæ maj. | 5 31 | 21 | 30.97 | 1.2144 |
| ι Herculis | 5 19 | 64 | 97.35 | 1.2333 |
| δ Persei | 4 35 | 35 | 34.41 | 0.9915 |
| α — | 2 36 | 64 | 48.71 | 0.8724 |
| 46 Aurigæ | 2 5 | 20 | 8.68 | 0.6588 |
| η Ursæ maj. | 0 48 | 148 | 123.81 | 0.9147 |
| 9 Aurigæ | 0 17 | 21 | 12.11 | 0.7594 |
| γ Draconis | 0 3 | 291 | 170.09 | 0.7645 |
| 35 Camelopardi | 0 3 | 39 | 25.63 | 0.8107 |
| τ Persei | 0 9 | 51 | 53.09 | 1.0203 |
| γ — | 0 57 | 51 | 46.15 | 0.9513 |
| β Draconis | 1 2 | 240 | 227.95 | 0.9746 |
| λ Cassiopeæ | 1 33 | 39 | 24.14 | 0.7868 |
| δ Aurigæ | 2 44 | 34 | 66.82 | 1.4020 |
| α Cassiopeæ | 3 34 | 101 | 86.66 | 0.9263 |
| γ Ursæ maj. | 3 43 | 60 | 60.43 | 1.0035 |
| ζ — | 4 52 | 125 | 209.29 | 1.2940 |
| ξ Draconis | 5 27 | 55 | 112.83 | 1.4323 |
| 18 Camelopardi | 5 30 | 30 | 48.20 | 1.2676 |
| ϵ Ursæ maj. | 5 57 | 118 | 160.56 | 1.1665 |
| β Cassiopeæ | 6 11 | 99 | 130.32 | 1.1473 |
| β Ursæ maj. | 6 21 | 41 | 17.63 | 0.6558 |

It appears from this list, as might have been anticipated, that the observations are more uncertain, the farther they are removed from the zenith, and the law of the mean errors is on the whole as regular as could be expected. Nevertheless, in order to determine them still nearer, I have compared them with the simple formula

$$\epsilon\epsilon = \alpha + \beta z$$

depending on the zenith distance ; in which z denotes the zen. dist. expressed in *degrees*. The values α and β most nearly corresponding with the above table are

$$\alpha = 0.6121$$

$$\beta = 0.1737$$

Since by assuming these values of α and β the formula corresponds as nearly as we can expect with the errors actually found by observation, I have had no hesitation in making a new determination of the Constants of Aberration and Nutation based on this hypothesis, instead of that of the equal value of the observations of all stars. Accordingly, by multiplying the equations resulting from the observations of each star by

$$\frac{\alpha}{\epsilon\epsilon} = \frac{\alpha}{\alpha + \beta z}$$

I have given them the weight, which they would have had if the observations on which they depend were as accurate as those made in the zenith, i. e. as accurate as observations whose *mean error* = $\sqrt{0.6121} = 0''.7824$.

I shall, in the first place, here give the values of the factors $\frac{\alpha}{\epsilon\epsilon}$

| Names of Stars. | Z. D. | | $\frac{\alpha}{\epsilon\epsilon}$ |
|----------------------|-------|--------|-----------------------------------|
| α Aurigæ | 5 48 | 1.2726 | 0.3780 |
| ψ Ursæ maj. | 5 31 | 1.2533 | 0.3897 |
| ι Herculis | 5 19 | 1.2394 | 0.3985 |
| δ Persei | 4 35 | 1.1866 | 0.4348 |
| α — | 2 36 | 1.0314 | 0.5755 |
| 46 Aurigæ | 2 5 | 0.9869 | 0.6286 |
| η Ursæ maj. | 0 48 | 0.8666 | 0.8151 |
| 9 Aurigæ | 0 17 | 0.8132 | 0.9257 |
| γ Draconis | 0 3 | 0.7879 | 0.9861 |
| 35 Camelopardi | 0 3 | 0.7879 | 0.9861 |
| τ Persei | 0 9 | 0.7989 | 0.9592 |
| γ — | 0 57 | 0.8815 | 0.7877 |
| β Draconis | 1 2 | 0.8897 | 0.7734 |
| λ Cassiopeæ | 1 33 | 0.9489 | 0.6799 |
| δ Aurigæ | 2 44 | 1.0425 | 0.5633 |
| α Cassiopeæ | 3 34 | 1.1098 | 0.4971 |
| γ Ursæ maj. | 3 43 | 1.1215 | 0.4867 |
| ζ — | 4 52 | 1.2072 | 0.4200 |
| ξ Draconis | 5 27 | 1.2485 | 0.3928 |
| 18 Camelopardi | 5 30 | 1.2520 | 0.3906 |
| ϵ Ursæ maj. | 5 57 | 1.2828 | 0.3720 |
| β Cassiopeæ | 6 11 | 1.2985 | 0.3631 |
| β Ursæ maj. | 6 21 | 1.3095 | 0.3570 |

By multiplying the equations for each star in sect. III. by these factors, we have the five following new final equations, depending on the Wansted observations alone.

$$\begin{aligned}
 0 &= + 14.52 + 135.62 y - 18.04 y' - 14.97 y'' + 233.30 i' + 424.67 \kappa \\
 0 &= - 33.68 - 18.04 y + 101.45 y' - 11.18 y'' + 506.75 i' + 528.28 \kappa \\
 0 &= + 19.03 - 14.97 y - 11.18 y' + 82.37 y'' + 277.63 i' + 598.15 \kappa \\
 0 &= - 737.22 + 233.30 y + 506.75 y' + 277.63 y'' + 27770.57 i' + 9956.45 \kappa \\
 0 &= + 307.32 + 424.67 y + 528.28 y' + 598.15 y'' + 9956.45 i' + 164251.73 \kappa
 \end{aligned}$$

By eliminating y, y', y'' , we obtain from the above equations for i' and κ

$$\begin{aligned}
 (5) \quad 0 &= - 667.72 + 22669.73 i' + 2619.69 \kappa \\
 0 &= + 299.10 + 2619.69 i' + 152854.05 \kappa
 \end{aligned}$$

The solution of which gives

$$i' = + 0.029740$$

or

$$i' = - 0.041870$$

and

$$\kappa = - 0.0024665.$$

After thus assigning to the observations a weight, depending on their zenith distances, the formulæ for Nutation for the beginning of the year 1800 become

$$\begin{aligned}
 \Delta L &= - 17.2828 \sin. \varpi + 0.20811 \sin. 2 \varpi - 1.25651 \sin. 2 \odot - 0.20728 \sin. 2 \odot \\
 \Delta \bullet &= + 9.2442 \cos. \varpi - 0.09033 \cos. 2 \varpi + 0.54544 \cos. 2 \odot + 0.08998 \cos. 2 \odot.
 \end{aligned}$$

and Constant of Aberration = $20''.2050$.

If we substitute the value of i' just found in the final equation deduced from the observations made at Kew, we have

$$0 = + 2.396 + 8838.85 \kappa$$

and hence

$$\kappa = - 0.0002711$$

or the value of Constant of Aberration = $20''.2495$.

In order to combine both the above series of observations, it is only necessary to inquire what is the *mean error* of the Kew observations, which were made with a different instrument from that used at Wansted.

Assuming $i' = + 0.029740$, I find the sum of the squares of the errors of sixty-four observations at Kew = $18''.22$; and therefore the square of the mean error of one observation = $0''.2847$. But the square of the mean error (α) of a star observed in the zenith of Wansted, with the instrument Bradley used there, was found to be = 0.6121 ; it follows therefore that the larger instrument at Kew gave much more exact results than the one at Wansted. We shall make equat. (4), which depends on the Kew observations, comparable with equat. (5), by multiplying the former by

$$\frac{\alpha}{\epsilon\epsilon} = \frac{0.6121}{0.2847} = 2.150$$

whence they become

$$\begin{aligned}
 0 &= + 28.01 + 112.64 i' + 689.40 \kappa \\
 0 &= - 15.35 + 689.40 i' + 19003.53 \kappa
 \end{aligned}$$

which when added to equat. (5) make the sums

$$0 = -639.71 + 22782.37 i' + 3309.09 \kappa$$

$$0 = +274.75 + 3309.09 i' + 171857.58 \kappa$$

By solving which we have

$$i' = +0.028391$$

or

$$i' = -0.043123$$

$$\kappa = -0.0021454$$

and the formulæ for Nutation for the beginning of 1800 become

$$\Delta L = -17.2600 \sin. \varpi + 0.20784 \sin. 2 \varpi - 1.26011 \sin. 2 \odot - 0.20701 \sin. 2 \odot$$

$$\Delta \omega = + 9.2320 \cos. \varpi - 0.09022 \cos. 2 \varpi + 0.54700 \cos. 2 \odot + 0.08986 \cos. 2 \odot$$

and Constant of Aberration = $20''.2116$.

The weight of

$$i' = 22718.40$$

That of

$$\kappa = 171376.89$$

The mean error therefore of

$$i' = \pm \sqrt{\frac{0.6121}{22718.40}} = \pm 0.0051906$$

and of

$$\kappa = \pm \sqrt{\frac{0.6121}{171376.89}} = \pm 0.0018899$$

and their effect on the computation of the coefficient of $\cos. \varpi$ in the expression for $\Delta \omega = \pm 0''.0466$, and on the Constant of Aberration = $\pm 0''.0383$; whence we may estimate the accuracy, with which the quantities sought have been determined from Bradley's observations.

This last determination, which rests on the hypothesis of the value of the observations depending on the zenith distance, is undoubtedly to be preferred to that given in sect. III, which depends on the equal value of observations at all distances from the zenith. I consider it therefore as the most probable result, which can be deduced from the observations of Bradley made at Kew and Wansted.

In order, however, to shew the results given by the observed stars separately both for Nutation and Aberration, I here insert the last two of the equations, for each star, given in sect. III., after substituting for the value of

$$y = -0.1692$$

$$y' = +0.1303$$

$$y'' = -0.3264$$

and moreover in the last equation but one making $\kappa = -0.0021454$, and in the last $i' = +0.028391$.

| | 0= | 0= |
|----------------------|-----------------------------------|-------------------------------|
| α Aurigæ | - 182.261 + 3448.57 $\ddot{\nu}$ | + 489.093 + 9102.44 κ |
| ψ Ursæ maj. | + 13.213 + 24.08 $\ddot{\nu}$ | - 143.041 + 1567.37 κ |
| ϵ Herculis | - 14.296 + 134.42 $\ddot{\nu}$ | + 34.997 + 14064.54 κ |
| δ Persei | + 5.160 + 30.57 $\ddot{\nu}$ | - 70.650 + 2171.78 κ |
| α — | - 90.270 + 1027.25 $\ddot{\nu}$ | + 101.183 + 5095.97 κ |
| 46 Aurigæ | + 1.725 + 23.77 $\ddot{\nu}$ | + 41.822 + 870.40 κ |
| η Ursæ maj. | - 213.295 + 2540.43 $\ddot{\nu}$ | - 184.016 + 22925.35 κ |
| 9 Aurigæ | - 11.087 + 269.33 $\ddot{\nu}$ | - 33.355 + 604.98 κ |
| γ Draconis | - 603.290 + 10129.44 $\ddot{\nu}$ | + 262.279 + 55234.92 κ |
| 35 Camelopardi | - 7.212 + 827.23 $\ddot{\nu}$ | + 32.049 + 2226.71 κ |
| τ Persei | - 71.004 + 981.96 $\ddot{\nu}$ | - 86.506 + 4279.83 κ |
| γ — | + 32.697 + 1637.95 $\ddot{\nu}$ | + 25.906 + 2359.82 κ |
| β Draconis | + 160.504 + 8661.01 $\ddot{\nu}$ | - 853.320 + 45325.52 κ |
| λ Cassiopeæ | - 15.897 + 281.07 $\ddot{\nu}$ | + 4.698 + 769.24 κ |
| δ Aurigæ | - 157.270 + 974.17 $\ddot{\nu}$ | + 207.797 + 2854.75 κ |
| α Cassiopeæ | - 72.562 + 538.87 $\ddot{\nu}$ | - 298.565 + 16700.98 κ |
| γ Ursæ maj. | + 27.141 + 527.17 $\ddot{\nu}$ | + 167.407 + 8327.54 κ |
| ζ — | + 248.875 + 2564.44 $\ddot{\nu}$ | + 743.417 + 18971.72 κ |
| ξ Draconis | + 18.974 + 181.72 $\ddot{\nu}$ | - 349.898 + 10157.33 κ |
| 18 Camelopardi | - 41.825 + 866.25 $\ddot{\nu}$ | + 129.447 + 2878.56 κ |
| ϵ Ursæ maj. | + 63.996 + 1879.93 $\ddot{\nu}$ | + 653.726 + 19430.69 κ |
| β Cassiopeæ | + 11.863 + 587.88 $\ddot{\nu}$ | + 777.946 + 18034.92 κ |
| β Ursæ maj. | - 3.024 + 182.47 $\ddot{\nu}$ | + 10.206 + 5318.71 κ |

The observations at Kew give besides for γ Draconis

$$0= + 12.342 + 52.39 \ddot{\nu}$$

$$0= + 1.964 + 8838.85 \kappa$$

If we multiply the equations, depending on the Wansted observations, by the value of $\frac{\alpha}{ee}$ given in this section, and those depending on the Kew observations by $\frac{\alpha}{ee} = 2.150$, in order to reduce them to the same weight as observations made in the zenith of Wansted, and if we combine the observations of γ Draconis made at both places ; then the above equations are changed into the following :

| | 0= | 0= |
|----------------------|-----------------------------------|-------------------------------|
| α Aurigæ | - 68.899 + 1303.62 $\ddot{\nu}$ | + 184.883 + 3441.07 κ |
| ψ Ursæ maj. | + 5.149 + 9.38 $\ddot{\nu}$ | - 55.746 + 610.83 κ |
| ϵ Herculis | - 5.697 + 53.57 $\ddot{\nu}$ | + 13.947 + 5605.00 κ |
| δ Persei | + 2.243 + 13.29 $\ddot{\nu}$ | - 30.715 + 944.18 κ |
| α — | - 51.950 + 591.20 $\ddot{\nu}$ | + 58.231 + 2932.80 κ |
| 46 Aurigæ | + 1.084 + 14.94 $\ddot{\nu}$ | + 26.288 + 547.11 κ |
| η Ursæ maj. | - 173.864 + 2070.76 $\ddot{\nu}$ | - 150.000 + 18686.99 κ |
| 9 Aurigæ | - 10.263 + 249.32 $\ddot{\nu}$ | - 30.877 + 560.03 κ |
| γ Draconis | - 568.365 + 10101.39 $\ddot{\nu}$ | + 262.853 + 73469.83 κ |
| 35 Camelopardi | - 7.112 + 815.78 $\ddot{\nu}$ | + 31.604 + 2195.75 κ |
| τ Persei | - 68.107 + 941.90 $\ddot{\nu}$ | - 82.978 + 4105.18 κ |
| γ — | + 25.757 + 1290.30 $\ddot{\nu}$ | + 20.408 + 1859.00 κ |
| β Draconis | + 124.140 + 6698.67 $\ddot{\nu}$ | - 659.983 + 35056.70 κ |
| λ Cassiopeæ | - 10.808 + 191.10 $\ddot{\nu}$ | + 3.194 + 522.99 κ |
| δ Aurigæ | - 88.590 + 548.74 $\ddot{\nu}$ | + 117.046 + 1608.00 κ |
| α Cassiopeæ | - 36.067 + 267.85 $\ddot{\nu}$ | + 148.403 + 8301.20 κ |
| γ Ursæ maj. | + 13.210 + 256.57 $\ddot{\nu}$ | + 81.480 + 4053.00 κ |
| ζ — | + 104.537 + 1077.15 $\ddot{\nu}$ | + 312.264 + 7960.00 κ |
| ξ Draconis | + 7.452 + 71.37 $\ddot{\nu}$ | - 137.420 + 3995.64 κ |
| 18 Camelopardi | - 16.337 + 338.35 $\ddot{\nu}$ | + 50.560 + 1124.32 κ |
| ϵ Ursæ maj. | + 23.808 + 699.37 $\ddot{\nu}$ | + 243.206 + 7228.67 κ |
| β Cassiopeæ | + 4.307 + 213.45 $\ddot{\nu}$ | + 282.463 + 6548.33 κ |
| β Ursæ maj. | - 1.080 + 65.14 $\ddot{\nu}$ | + 3.643 + 1898.64 κ |

REDUCTION OF

The observations of many of the stars are manifestly so discordant, that it would be uninteresting to inquire into their separate results. The stars possessing the greatest weight are the following:

α Aurigæ, α Persei, η Ursæ maj., γ Draconis, 35 Camelopardi, τ Persei, γ Persei, β Draconis, δ Aurigæ, ζ Ursæ maj., ϵ Ursæ maj.

The results of which are given in the following table:

| Names of Stars. | i' | i | Coefficient of cos. Ω . | Mean Errors. |
|-------------------|-----------|-----------|-----------------------------------|--------------|
| α Aurigæ | +0.052852 | -0.020364 | +9.4515 | ± 0.1945 |
| α Persei | +0.087876 | +0.012225 | 9.7660 | 0.2889 |
| η Ursæ maj. | +0.083962 | +0.008582 | 9.7308 | 0.1543 |
| γ Draconis | +0.056265 | -0.017188 | 9.4822 | 0.0699 |
| 35 Camelopardi | +0.008718 | -0.061429 | 9.0554 | 0.2459 |
| τ Persei | +0.072308 | -0.002261 | 9.6263 | 0.2288 |
| γ — | -0.019962 | -0.088115 | 8.7980 | 0.1955 |
| β Draconis | -0.018532 | -0.086784 | 8.8108 | 0.0858 |
| δ Aurigæ | +0.161441 | +0.080673 | 10.4263 | 0.2998 |
| ζ Ursæ maj. | -0.097048 | -0.159841 | 8.1057 | 0.2140 |
| ϵ — | -0.034042 | -0.101215 | 8.6714 | 0.2656 |

In determining the Aberration, individual stars agree better; and it is only ψ Ursæ maj., 9 Aurigæ, λ Cassiopeæ, which possess so little weight as to render it uninteresting to adduce their separate results. The rest give as follows:

| Names of Stars. | κ . | Constant of Aberration. | Mean Errors. |
|----------------------|------------|----------------------------|--------------|
| α Aurigæ | -0.053731 | 19.1667 | ± 0.2702 |
| ϵ Herculis | -0.002488 | 20.2046 | 0.2117 |
| δ Persei | +0.032531 | 20.9139 | 0.5158 |
| α — | -0.019855 | 19.8528 | 0.2927 |
| 46 Aurigæ | -0.048050 | 19.2818 | 0.6776 |
| η Ursæ maj. | +0.008027 | 20.4176 | 0.1160 |
| γ Draconis | -0.003577 | 20.1825 | 0.0585 |
| 35 Camelopardi | -0.014393 | 19.9635 | 0.3382 |
| τ Persei | +0.020213 | 20.6644 | 0.2474 |
| γ — | -0.010978 | 20.0326 | 0.3676 |
| β Draconis | +0.018826 | 20.6363 | 0.0847 |
| δ Aurigæ | -0.072790 | 18.7806 | 0.3952 |
| α Cassiopeæ | -0.017877 | 19.8929 | 0.1739 |
| γ Ursæ maj. | -0.020103 | 19.8478 | 0.2490 |
| ζ — | -0.039185 | 19.4613 | 0.1775 |
| ξ Draconis | +0.034394 | 20.9571 | 0.2507 |
| 18 Camelopardi | -0.044970 | 19.3564 | 0.4727 |
| ϵ Ursæ maj. | -0.033609 | 19.5742 | 0.1863 |
| β Cassiopeæ | -0.043135 | 19.3813 | 0.1958 |
| β Ursæ maj. | -0.001919 | 20.2161 | 0.2295 |

Hence it may be observed, that out of the eleven stars, from the observations of which the Nutation alone has been deduced, seven give an *increase* and four a *decrease* of the assumed value. So that the majority concur with the result derived from a combination of the whole, viz. in giving an increase.

Furthermore, out of twenty stars, fourteen give a diminution, and six an augmentation, of the assumed Aberration. So here too, the agreement of the majority with the general result is obvious; but the weight, due to the determination of Nutation and Aberration by individual stars, is generally too small to allow of our attaching much importance to the results above given, if taken separately.

In conclusion, I beg once more to remark, that the results obtained do not depend on the hypothesis of the collimation remaining unchanged during the whole period, but only during each of the four periods mentioned in sect. III. And moreover, that the grounds for asserting in the above mentioned place, that the observations of stars, differing 180° in R. A., clear the results from the effect of change in collimation, may be seen in the trifling diminution of the coefficients of i' and κ in both the final equations in sect. III. and IV. after y, y', y'' , had been eliminated.

T A B L E S.

TABLE I.—*Precession + Proper Motion.*

| | λ Cassiopeia | α Cassiopeia | τ Persel | α Persel | γ Persel | δ Persel | 9 Aurige | α Aurige | 18 Camelop. | δ Aurige | 35 Camelop. |
|------|----------------------|---------------------|---------------|-----------------|-----------------|-----------------|----------|-----------------|-------------|-----------------|-------------|
| 1727 | — 60°45' | — 59°68' | — 46°78' | — 41°46' | — 45°16' | — 37°82' | — 18°58' | — 15°16' | — 12°49' | — 6°46' | — 4°27' |
| 28 | — 40.30 | — 39.79 | — 31.18 | — 27.63 | — 30.10 | — 25.21 | — 12.38 | — 10.10 | — 8.32 | — 4.29 | — 2.84 |
| 29 | — 20.15 | — 19.89 | — 15.59 | — 13.81 | — 15.05 | — 12.60 | — 6.18 | — 5.04 | — 4.15 | — 2.14 | — 1.41 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | + 20.15 | + 19.89 | + 15.59 | + 13.81 | + 15.05 | + 12.60 | + 6.18 | + 5.04 | + 4.15 | + 2.14 | + 1.41 |
| 32 | + 40.30 | + 39.79 | + 31.16 | + 27.61 | + 30.08 | + 25.19 | + 12.36 | + 10.08 | + 8.30 | + 4.27 | + 2.82 |
| 33 | + 60.45 | + 59.68 | + 46.74 | + 41.42 | + 45.12 | + 37.78 | + 18.52 | + 15.10 | + 12.43 | + 6.40 | + 4.21 |
| 34 | + 80.59 | + 79.58 | + 62.32 | + 55.21 | + 60.15 | + 50.36 | + 24.68 | + 20.13 | + 16.55 | + 8.51 | + 5.59 |
| 35 | + 100.73 | + 99.46 | + 77.88 | + 69.00 | + 75.18 | + 62.94 | + 30.83 | + 25.14 | + 20.67 | + 10.62 | + 6.98 |
| 36 | + 120.88 | + 119.36 | + 93.45 | + 82.79 | + 90.19 | + 75.51 | + 36.97 | + 30.15 | + 24.79 | + 12.72 | + 8.35 |
| 37 | + 141.03 | + 139.24 | + 109.00 | + 96.57 | + 105.22 | + 88.08 | + 43.11 | + 35.16 | + 28.89 | + 14.81 | + 9.72 |
| 38 | + 161.17 | + 159.14 | + 124.56 | + 110.35 | + 120.23 | + 100.64 | + 49.25 | + 40.15 | + 32.99 | + 16.91 | + 11.08 |
| 39 | + 181.29 | + 179.02 | + 140.10 | + 124.12 | + 135.24 | + 113.19 | + 55.38 | + 45.15 | + 37.08 | + 18.99 | + 12.44 |
| 40 | + 201.46 | + 198.92 | + 155.66 | + 137.89 | + 150.25 | + 125.75 | + 61.50 | + 50.13 | + 41.16 | + 21.06 | + 13.78 |
| 41 | + 221.60 | + 218.80 | + 171.21 | + 151.65 | + 165.23 | + 138.30 | + 67.61 | + 55.10 | + 45.24 | + 23.13 | + 15.12 |
| 42 | + 241.74 | + 238.69 | + 186.76 | + 165.41 | + 180.23 | + 150.84 | + 73.71 | + 60.08 | + 49.31 | + 25.18 | + 16.46 |
| 43 | + 261.89 | + 258.57 | + 202.29 | + 179.16 | + 195.21 | + 163.38 | + 79.82 | + 65.04 | + 53.37 | + 27.24 | + 17.78 |
| 44 | + 282.03 | + 278.44 | + 217.82 | + 192.81 | + 210.21 | + 175.91 | + 85.91 | + 70.01 | + 57.42 | + 29.29 | + 19.10 |
| 45 | + 302.17 | + 298.34 | + 233.36 | + 206.67 | + 225.18 | + 184.44 | + 92.00 | + 74.96 | + 61.47 | + 31.32 | + 20.42 |
| 46 | + 322.31 | + 318.23 | + 248.88 | + 220.41 | + 240.16 | + 200.97 | + 98.08 | + 79.91 | + 65.51 | + 33.35 | + 21.72 |
| 47 | + 342.45 | + 338.12 | + 264.40 | + 234.14 | + 255.14 | + 213.49 | + 104.15 | + 84.85 | + 69.54 | + 35.38 | + 23.02 |

CONTINUATION OF TABLE I.—*Mean Motion for every 10 Star-days.*

| | λ Cassiopeia | α Cassiopeia | τ Persel | α Persel | γ Persel | δ Persel | 9 Aurige | α Aurige | 18 Camelop. | δ Aurige | 35 Camelop. |
|-------|----------------------|---------------------|---------------|-----------------|-----------------|-----------------|----------|-----------------|-------------|-----------------|-------------|
| Jan. | + 0°00' | + 0°00' | + 0°00' | + 0°00' | + 0°00' | + 0°00' | + 0°00' | + 0°00' | + 0°00' | + 0°00' | + 0°00' |
| | 0.55 | 0.54 | 0.43 | 0.38 | 0.41 | 0.34 | 0.17 | 0.14 | 0.11 | 0.06 | 0.04 |
| | 1.10 | 1.09 | 0.85 | 0.75 | 0.83 | 0.69 | 0.34 | 0.28 | 0.23 | 0.12 | 0.08 |
| | 1.65 | 1.63 | 1.28 | 1.13 | 1.23 | 1.03 | 0.51 | 0.41 | 0.34 | 0.18 | 0.12 |
| | 2.20 | 2.17 | 1.70 | 1.51 | 1.64 | 1.38 | 0.68 | 0.55 | 0.45 | 0.23 | 0.15 |
| Feb. | 2.75 | 2.72 | 2.13 | 1.89 | 2.05 | 1.72 | 0.84 | 0.69 | 0.57 | 0.29 | 0.19 |
| | 3.30 | 3.26 | 2.55 | 2.26 | 2.47 | 2.06 | 1.01 | 0.83 | 0.68 | 0.35 | 0.23 |
| | 3.85 | 3.80 | 2.98 | 2.64 | 2.88 | 2.41 | 1.18 | 0.96 | 0.79 | 0.41 | 0.27 |
| | 4.40 | 4.35 | 3.40 | 3.02 | 3.29 | 2.75 | 1.35 | 1.10 | 0.91 | 0.47 | 0.31 |
| | 4.95 | 4.89 | 3.83 | 3.40 | 3.70 | 3.10 | 1.52 | 1.24 | 1.02 | 0.53 | 0.35 |
| Apr. | 5.50 | 5.43 | 4.26 | 3.77 | 4.11 | 3.44 | 1.69 | 1.38 | 1.13 | 0.59 | 0.39 |
| | 6.05 | 5.97 | 4.68 | 4.15 | 4.52 | 3.78 | 1.86 | 1.52 | 1.25 | 0.64 | 0.42 |
| | 6.60 | 6.52 | 5.11 | 4.53 | 4.93 | 4.13 | 2.03 | 1.65 | 1.36 | 0.70 | 0.46 |
| | 7.15 | 7.06 | 5.53 | 4.90 | 5.34 | 4.47 | 2.19 | 1.79 | 1.47 | 0.76 | 0.50 |
| May | 7.70 | 7.61 | 5.96 | 5.28 | 5.75 | 4.82 | 2.36 | 1.93 | 1.59 | 0.82 | 0.54 |
| | 8.25 | 8.15 | 6.38 | 5.66 | 6.16 | 5.16 | 2.53 | 2.07 | 1.70 | 0.88 | 0.58 |
| | 8.80 | 8.69 | 6.81 | 6.04 | 6.57 | 5.51 | 2.70 | 2.20 | 1.81 | 0.94 | 0.62 |
| | 9.35 | 9.23 | 7.23 | 6.41 | 6.98 | 5.85 | 2.87 | 2.34 | 1.93 | 0.99 | 0.66 |
| | 9.90 | 9.78 | 7.66 | 6.79 | 7.39 | 6.19 | 3.04 | 2.48 | 2.04 | 1.05 | 0.69 |
| June | 10.45 | 10.32 | 8.09 | 7.17 | 7.81 | 6.54 | 3.21 | 2.62 | 2.15 | 1.11 | 0.73 |
| | 11.00 | 10.87 | 8.51 | 7.54 | 8.22 | 6.88 | 3.38 | 2.76 | 2.27 | 1.17 | 0.77 |
| | 11.55 | 11.41 | 8.94 | 7.92 | 8.63 | 7.22 | 3.55 | 2.89 | 2.38 | 1.23 | 0.81 |
| | 12.10 | 11.95 | 9.36 | 8.30 | 9.04 | 7.57 | 3.71 | 3.03 | 2.50 | 1.29 | 0.85 |
| | 12.65 | 12.49 | 9.79 | 8.68 | 9.45 | 7.91 | 3.88 | 3.17 | 2.61 | 1.35 | 0.89 |
| Aug. | 13.20 | 13.04 | 10.21 | 9.05 | 9.86 | 8.25 | 4.05 | 3.31 | 2.72 | 1.40 | 0.93 |
| | 13.75 | 13.58 | 10.64 | 9.43 | 10.27 | 8.60 | 4.22 | 3.44 | 2.84 | 1.46 | 0.97 |
| | 14.30 | 14.12 | 11.06 | 9.81 | 10.68 | 8.94 | 4.39 | 3.58 | 2.95 | 1.52 | 1.00 |
| | 14.85 | 14.67 | 11.49 | 10.19 | 11.09 | 9.29 | 4.56 | 3.72 | 3.06 | 1.58 | 1.04 |
| | 15.40 | 15.21 | 11.91 | 10.56 | 11.50 | 9.63 | 4.73 | 3.86 | 3.17 | 1.64 | 1.08 |
| Sept. | 15.95 | 15.75 | 12.34 | 10.94 | 11.91 | 9.98 | 4.89 | 3.99 | 3.29 | 1.70 | 1.12 |
| | 16.50 | 16.30 | 12.77 | 11.32 | 12.33 | 10.32 | 5.06 | 4.13 | 3.40 | 1.75 | 1.16 |
| | 17.05 | 16.84 | 13.19 | 11.70 | 12.74 | 10.67 | 5.23 | 4.27 | 3.52 | 1.81 | 1.20 |
| | 17.60 | 17.38 | 13.62 | 12.07 | 13.15 | 11.01 | 5.40 | 4.41 | 3.63 | 1.87 | 1.24 |
| | 18.15 | 17.92 | 14.04 | 12.45 | 13.56 | 11.35 | 5.57 | 4.54 | 3.74 | 1.93 | 1.27 |
| Oct. | 18.70 | 18.47 | 14.47 | 12.83 | 13.97 | 11.70 | 5.74 | 4.68 | 3.86 | 1.99 | 1.31 |
| | 19.25 | 19.01 | 14.89 | 13.20 | 14.38 | 12.04 | 5.91 | 4.82 | 3.97 | 2.05 | 1.35 |
| | 19.80 | 19.55 | 15.32 | 13.58 | 14.79 | 12.38 | 6.08 | 4.96 | 4.08 | 2.11 | 1.39 |
| | 20.35 | 20.09 | 15.74 | 13.95 | 15.20 | 12.61 | 6.25 | 5.10 | 4.20 | 2.16 | 1.43 |

TABLE I.—*Præcession + Proper Motion.*

| | 46 Aurigæ | δ Ursæ maj. | ψ Ursæ maj. | γ Ursæ maj. | ϵ Ursæ maj. | ζ Ursæ maj. | η Ursæ maj. | β Draconis | ι Herculis | ξ Draconis | γ Draconis | δ Cassiopeæ |
|------|-----------|--------------------|------------------|--------------------|----------------------|-------------------|------------------|------------------|------------------|----------------|-------------------|--------------------|
| 1727 | +1°32' | + 58°13' | + 57°97' | + 60°02' | + 59°35' | + 57°25' | + 54°98' | + 9°35' | + 7°35' | + 2°68' | + 2°71' | - 59°58' |
| 28 | +0.89 | + 38.76 | + 38.65 | + 40.01 | + 39.57 | + 38.16 | + 36.65 | + 6.23 | + 4.89 | + 1.78 | + 1.80 | - 39.72 |
| 29 | +0.45 | + 19.38 | + 19.32 | + 20.01 | + 19.78 | + 19.08 | + 18.33 | + 3.11 | + 2.45 | + 0.89 | + 0.90 | - 19.86 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | -0.45 | - 19.38 | - 19.32 | - 20.01 | - 19.78 | - 19.08 | - 18.33 | - 3.11 | - 2.45 | - 0.89 | - 0.90 | + 19.86 |
| 32 | -0.91 | - 38.76 | - 38.65 | - 40.01 | - 39.57 | - 38.16 | - 36.65 | - 6.23 | - 4.89 | - 1.78 | - 1.80 | + 39.72 |
| 33 | -1.38 | - 58.15 | - 57.99 | - 60.02 | - 59.35 | - 57.23 | - 54.96 | - 9.33 | - 7.33 | - 2.66 | - 2.69 | + 59.58 |
| 34 | -1.85 | - 77.53 | - 77.31 | - 80.02 | - 79.13 | - 76.31 | - 73.29 | - 12.44 | - 9.76 | - 3.55 | - 3.58 | + 79.44 |
| 35 | -2.33 | - 96.92 | - 96.65 | - 100.03 | - 98.91 | - 95.38 | - 91.61 | - 15.55 | - 12.20 | - 4.44 | - 4.48 | + 99.30 |
| 36 | -2.81 | - 116.31 | - 115.98 | - 120.05 | - 118.68 | - 114.46 | - 109.92 | - 18.65 | - 14.63 | - 5.32 | - 5.37 | + 119.15 |
| 37 | -3.31 | - 135.71 | - 135.31 | - 140.05 | - 138.47 | - 133.63 | - 128.24 | - 21.75 | - 17.07 | - 6.20 | - 6.26 | + 139.02 |
| 38 | -3.81 | - 155.11 | - 154.65 | - 160.06 | - 158.25 | - 152.60 | - 146.55 | - 24.85 | - 19.50 | - 7.08 | - 7.15 | + 158.87 |
| 39 | -4.31 | - 174.49 | - 173.98 | - 180.06 | - 178.03 | - 171.67 | - 164.87 | - 27.95 | - 21.92 | - 7.96 | - 8.03 | + 178.73 |
| 40 | -4.83 | - 193.90 | - 193.32 | - 200.07 | - 197.80 | - 190.74 | - 183.17 | - 31.04 | - 24.35 | - 8.83 | - 8.91 | + 198.59 |
| 41 | -5.35 | - 213.30 | - 212.67 | - 220.09 | - 217.57 | - 209.81 | - 201.49 | - 34.13 | - 26.77 | - 9.71 | - 9.79 | + 218.45 |
| 42 | -5.77 | - 232.70 | - 232.00 | - 240.09 | - 237.35 | - 228.87 | - 219.79 | - 37.23 | - 29.18 | - 10.57 | - 10.66 | + 238.31 |
| 43 | -6.41 | - 252.10 | - 251.35 | - 260.10 | - 257.13 | - 247.94 | - 238.10 | - 40.32 | - 31.60 | - 11.45 | - 11.54 | + 258.17 |
| 44 | -6.95 | - 271.51 | - 270.68 | - 280.12 | - 276.90 | - 267.00 | - 256.40 | - 43.41 | - 34.02 | - 12.32 | - 12.41 | + 278.03 |
| 45 | -7.47 | - 290.91 | - 290.03 | - 300.12 | - 296.66 | - 286.06 | - 274.71 | - 46.49 | - 36.43 | - 13.19 | - 13.28 | + 297.88 |
| 46 | -8.05 | - 310.33 | - 309.37 | - 320.14 | - 316.44 | - 305.12 | - 293.00 | - 49.57 | - 38.84 | - 14.07 | - 14.16 | + 317.74 |
| 47 | -8.61 | - 329.73 | - 328.72 | - 340.14 | - 336.21 | - 324.18 | - 311.31 | - 52.66 | - 41.25 | - 14.93 | - 15.03 | + 337.60 |

CONTINUATION OF TABLE I.—*Mean Motion for every 10 Star-days.*

| | 46 Aurigæ | δ Ursæ maj. | ψ Ursæ maj. | γ Ursæ maj. | ϵ Ursæ maj. | ζ Ursæ maj. | η Ursæ maj. | β Draconis | ι Herculis | ξ Draconis | γ Draconis | δ Cassiopeæ |
|---------|-----------|--------------------|------------------|--------------------|----------------------|-------------------|------------------|------------------|------------------|----------------|-------------------|--------------------|
| Jan. 0 | -0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | + 0°00' |
| 10 | 0.01 | 0.53 | 0.53 | 0.55 | 0.54 | 0.52 | 0.50 | 0.09 | 0.07 | 0.02 | 0.03 | 0.54 |
| 20 | 0.03 | 1.06 | 1.06 | 1.09 | 1.08 | 1.04 | 1.00 | 0.17 | 0.13 | 0.05 | 0.05 | 1.09 |
| 30 | 0.04 | 1.59 | 1.58 | 1.64 | 1.62 | 1.56 | 1.50 | 0.26 | 0.20 | 0.07 | 0.07 | 1.63 |
| Feb. 9 | 0.05 | 2.12 | 2.11 | 2.19 | 2.16 | 2.08 | 2.00 | 0.34 | 0.27 | 0.10 | 0.10 | 2.17 |
| 19 | 0.06 | 2.65 | 2.64 | 2.73 | 2.70 | 2.61 | 2.50 | 0.43 | 0.33 | 0.12 | 0.12 | 2.71 |
| Mar. 1 | 0.07 | 3.18 | 3.17 | 3.28 | 3.24 | 3.13 | 3.00 | 0.51 | 0.40 | 0.15 | 0.15 | 3.25 |
| 11 | 0.09 | 3.71 | 3.69 | 3.82 | 3.78 | 3.65 | 3.50 | 0.60 | 0.47 | 0.17 | 0.17 | 3.80 |
| 21 | 0.10 | 4.23 | 4.22 | 4.37 | 4.32 | 4.17 | 4.00 | 0.68 | 0.53 | 0.20 | 0.20 | 4.34 |
| 31 | 0.11 | 4.76 | 4.75 | 4.92 | 4.86 | 4.69 | 4.50 | 0.77 | 0.60 | 0.22 | 0.22 | 4.88 |
| Apr. 10 | 0.12 | 5.29 | 5.28 | 5.46 | 5.40 | 5.21 | 5.00 | 0.85 | 0.67 | 0.24 | 0.25 | 5.42 |
| 20 | 0.14 | 5.82 | 5.80 | 6.01 | 5.94 | 5.73 | 5.50 | 0.94 | 0.74 | 0.27 | 0.27 | 5.97 |
| 30 | 0.15 | 6.35 | 6.33 | 6.56 | 6.48 | 6.25 | 6.01 | 1.02 | 0.80 | 0.29 | 0.30 | 6.51 |
| May 10 | 0.16 | 6.88 | 6.86 | 7.10 | 7.02 | 6.77 | 6.51 | 1.11 | 0.87 | 0.32 | 0.32 | 7.05 |
| 20 | 0.17 | 7.41 | 7.39 | 7.65 | 7.56 | 7.29 | 7.01 | 1.19 | 0.94 | 0.34 | 0.34 | 7.59 |
| 30 | 0.18 | 7.94 | 7.91 | 8.19 | 8.10 | 7.81 | 7.51 | 1.28 | 1.00 | 0.37 | 0.37 | 8.13 |
| June 9 | 0.20 | 8.47 | 8.44 | 8.74 | 8.64 | 8.34 | 8.01 | 1.36 | 1.07 | 0.39 | 0.39 | 8.68 |
| 19 | 0.21 | 9.00 | 8.97 | 9.29 | 9.18 | 8.86 | 8.51 | 1.45 | 1.14 | 0.41 | 0.42 | 9.22 |
| 29 | 0.22 | 9.53 | 9.50 | 9.83 | 9.72 | 9.38 | 9.01 | 1.53 | 1.20 | 0.44 | 0.44 | 9.76 |
| July 9 | 0.23 | 10.05 | 10.03 | 10.38 | 10.27 | 9.90 | 9.51 | 1.62 | 1.27 | 0.46 | 0.47 | 10.30 |
| 19 | 0.25 | 10.59 | 10.55 | 10.93 | 10.81 | 10.42 | 10.01 | 1.70 | 1.34 | 0.49 | 0.49 | 10.85 |
| 29 | 0.26 | 11.12 | 11.08 | 11.47 | 11.35 | 10.94 | 10.51 | 1.79 | 1.40 | 0.51 | 0.52 | 11.39 |
| Aug. 8 | 0.27 | 11.65 | 11.61 | 12.02 | 11.89 | 11.46 | 11.01 | 1.87 | 1.47 | 0.54 | 0.54 | 11.93 |
| 18 | 0.28 | 12.17 | 12.14 | 12.57 | 12.43 | 11.98 | 11.51 | 1.96 | 1.54 | 0.56 | 0.57 | 12.47 |
| 28 | 0.29 | 12.70 | 12.66 | 13.11 | 12.96 | 12.50 | 12.01 | 2.04 | 1.60 | 0.58 | 0.59 | 13.01 |
| Sept. 7 | 0.31 | 13.23 | 13.19 | 13.66 | 13.51 | 13.03 | 12.51 | 2.13 | 1.67 | 0.61 | 0.62 | 13.56 |
| 17 | 0.32 | 13.76 | 13.72 | 14.21 | 14.05 | 13.55 | 13.01 | 2.21 | 1.74 | 0.63 | 0.64 | 14.10 |
| 27 | 0.33 | 14.29 | 14.25 | 14.75 | 14.59 | 14.07 | 13.51 | 2.30 | 1.80 | 0.66 | 0.66 | 14.64 |
| Oct. 7 | 0.34 | 14.82 | 14.78 | 15.30 | 15.13 | 14.59 | 14.01 | 2.38 | 1.87 | 0.68 | 0.69 | 15.19 |
| 17 | 0.36 | 15.35 | 15.30 | 15.84 | 15.67 | 15.11 | 14.51 | 2.47 | 1.94 | 0.71 | 0.71 | 15.73 |
| 27 | 0.37 | 15.88 | 15.83 | 16.39 | 16.21 | 15.63 | 15.02 | 2.55 | 2.00 | 0.73 | 0.74 | 16.27 |
| Nov. 6 | 0.38 | 16.41 | 16.36 | 16.94 | 16.75 | 16.15 | 15.52 | 2.64 | 2.07 | 0.75 | 0.76 | 16.81 |
| 16 | 0.39 | 16.94 | 16.89 | 17.48 | 17.29 | 16.67 | 16.02 | 2.72 | 2.14 | 0.78 | 0.79 | 17.35 |
| 26 | 0.40 | 17.46 | 17.41 | 18.03 | 17.82 | 17.19 | 16.51 | 2.81 | 2.20 | 0.80 | 0.81 | 17.89 |
| Dec. 6 | 0.42 | 17.99 | 17.94 | 18.57 | 18.37 | 17.71 | 17.01 | 2.89 | 2.27 | 0.83 | 0.84 | 18.44 |
| 16 | 0.43 | 18.52 | 18.47 | 19.12 | 18.91 | 18.24 | 17.52 | 2.98 | 2.34 | 0.85 | 0.86 | 18.98 |
| 26 | 0.44 | 19.05 | 18.90 | 19.67 | 19.45 | 18.75 | 18.02 | 3.06 | 2.41 | 0.88 | 0.89 | 19.52 |
| 36 | 0.45 | 19.58 | 19.52 | 20.21 | 19.99 | 19.28 | 18.52 | 3.15 | 2.47 | 0.90 | 0.91 | 20.06 |

TABLE II.—*Lunar Nutation.*

| | λ Cassiopeia | α Cassiopeia | τ Persei | α Persei | γ Persei | δ Persei | 9 Aurigae | α Aurigae | 18 Camelop. | δ Aurigae | 35 Camelop. |
|-------------|----------------------|---------------------|---------------|-----------------|-----------------|-----------------|-----------|------------------|-------------|------------------|-------------|
| 1727 Jan. 0 | +0.064 | +0.386 | +5.084 | +5.986 | +5.400 | +6.498 | +8.198 | +8.354 | +8.505 | +8.748 | +8.783 |
| | +0.668 | +0.989 | +5.576 | +6.428 | +5.877 | +6.905 | +8.424 | +8.552 | +8.672 | +8.843 | +8.863 |
| | +1.261 | +1.579 | +6.019 | +6.815 | +6.301 | +7.253 | +8.579 | +8.679 | +8.767 | +8.866 | +8.870 |
| | +1.844 | +2.156 | +6.413 | +7.146 | +6.674 | +7.542 | +8.664 | +8.735 | +8.790 | +8.816 | +8.805 |
| | +2.417 | +2.720 | +6.757 | +7.421 | +6.995 | +7.772 | +8.680 | +8.720 | +8.741 | +8.693 | +8.667 |
| 1728 Jan. 0 | +2.229 | +2.536 | +6.647 | +7.336 | +6.894 | +7.701 | +8.683 | +8.733 | +8.765 | +8.741 | +8.720 |
| | +2.783 | +3.086 | +6.953 | +7.569 | +7.176 | +7.887 | +8.649 | +8.669 | +8.666 | +8.530 | +8.532 |
| | +3.314 | +3.607 | +7.201 | +7.739 | +7.398 | +8.007 | +8.544 | +8.534 | +8.497 | +8.276 | +8.276 |
| | +3.824 | +4.099 | +7.390 | +7.845 | +7.559 | +8.061 | +8.369 | +8.328 | +8.258 | +7.978 | +7.952 |
| | +4.311 | +4.563 | +7.520 | +7.888 | +7.659 | +8.049 | +8.123 | +8.052 | +7.949 | +7.637 | +7.559 |
| 1729 Jan. 0 | +4.155 | +4.413 | +7.480 | +7.883 | +7.634 | +8.062 | +8.213 | +8.154 | +8.061 | +7.772 | +7.699 |
| | +4.614 | +4.852 | +7.571 | +7.881 | +7.692 | +8.005 | +7.922 | +7.832 | +7.706 | +7.349 | +7.261 |
| | +5.031 | +5.248 | +7.598 | +7.815 | +7.686 | +7.883 | +7.567 | +7.447 | +7.290 | +6.868 | +6.767 |
| | +5.408 | +5.603 | +7.561 | +7.684 | +7.617 | +7.695 | +7.148 | +7.000 | +6.813 | +6.329 | +6.216 |
| | +5.743 | +5.915 | +7.460 | +7.489 | +7.484 | +7.442 | +6.666 | +6.491 | +6.275 | +5.733 | +5.609 |
| 1730 Jan. 0 | +5.637 | +5.816 | +7.501 | +7.561 | +7.536 | +7.534 | +6.834 | +6.668 | +6.460 | +5.937 | +5.818 |
| | +5.942 | +6.096 | +7.359 | +7.323 | +7.360 | +7.238 | +6.313 | +6.121 | +5.585 | +5.306 | +5.177 |
| | +6.196 | +6.323 | +7.156 | +7.026 | +7.125 | +6.884 | +5.743 | +5.526 | +5.264 | +4.635 | +4.496 |
| | +6.399 | +6.498 | +6.893 | +6.669 | +6.830 | +6.472 | +5.124 | +4.884 | +4.598 | +3.924 | +3.776 |
| | +6.550 | +6.621 | +6.570 | +6.253 | +6.475 | +6.001 | +4.455 | +4.194 | +3.886 | +3.172 | +3.017 |
| 1731 Jan. 0 | +6.506 | +6.587 | +6.685 | +6.398 | +6.600 | +6.165 | +4.682 | +4.429 | +4.127 | +3.425 | +3.274 |
| | +6.617 | +6.666 | +6.287 | +5.904 | +6.168 | +5.613 | +3.931 | +3.657 | +3.335 | +2.595 | +2.438 |
| | +6.680 | +6.701 | +5.910 | +5.445 | +5.763 | +5.107 | +3.260 | +2.970 | +2.631 | +1.863 | +1.701 |
| | +6.695 | +6.693 | +5.556 | +5.024 | +5.385 | +4.647 | +2.671 | +2.368 | +2.017 | +1.229 | +1.063 |
| | +6.663 | +6.642 | +5.224 | +4.638 | +5.034 | +4.233 | +2.161 | +1.851 | +1.492 | +0.692 | +0.525 |
| 1732 Jan. 0 | +6.669 | +6.649 | +5.243 | +4.660 | +5.055 | +4.256 | +2.188 | +1.754 | +1.518 | +0.719 | +0.552 |
| | +6.566 | +6.511 | +4.615 | +3.951 | +4.395 | +3.487 | +1.263 | +0.895 | +0.570 | -0.244 | -0.412 |
| | +6.412 | +6.325 | +3.984 | +3.232 | +3.736 | +2.735 | +0.384 | +0.053 | -0.325 | -1.146 | -1.313 |
| | +6.207 | +6.091 | +3.352 | +2.541 | +3.079 | +1.999 | -0.450 | -0.771 | -1.167 | -1.987 | -2.152 |
| | +5.952 | +5.808 | +2.717 | +1.841 | +2.424 | +1.279 | -1.237 | -1.576 | -1.957 | -2.767 | -2.929 |
| 1733 Jan. 0 | +6.044 | +5.909 | +2.936 | +2.081 | +2.651 | ..... | -0.966 | -1.312 | -1.686 | -2.500 | -2.664 |
| | +5.750 | +5.588 | +2.267 | +1.350 | +1.962 | ..... | -1.775 | -2.116 | -2.493 | -3.293 | -3.452 |
| | +5.408 | +5.221 | +1.582 | +0.627 | +1.260 | ..... | -2.563 | -2.899 | -3.273 | -4.052 | -4.206 |
| | +5.019 | +4.808 | +0.882 | -0.110 | +0.546 | ..... | -3.331 | -3.660 | -4.027 | -4.779 | -4.926 |
| | +4.582 | +4.348 | +0.165 | -0.855 | -0.181 | ..... | -4.079 | -4.400 | -4.754 | -5.472 | -5.611 |
| 1734 Jan. 0 | +4.732 | +4.506 | +0.404 | -0.608 | +0.061 | ..... | -3.833 | -4.158 | -4.516 | -5.246 | -5.388 |
| | +4.266 | +4.019 | -0.315 | -1.349 | -0.667 | ..... | -4.559 | -4.873 | -5.217 | -5.909 | -6.041 |
| | +3.767 | +3.501 | -1.026 | -2.074 | -1.384 | ..... | -5.241 | -5.541 | -5.868 | -6.516 | -6.638 |
| | +3.235 | +2.952 | -1.730 | -2.783 | -2.091 | ..... | -5.878 | -6.162 | -6.469 | -7.068 | -7.179 |
| | +2.670 | +2.370 | -2.427 | -3.476 | -2.788 | ..... | -6.471 | -6.738 | -7.021 | -7.565 | -7.663 |
| 1735 Jan. 0 | +2.859 | +2.566 | -2.197 | -3.248 | -2.558 | ..... | -6.279 | -6.552 | -6.845 | -7.407 | -7.509 |
| | +2.275 | +1.968 | -2.881 | -3.922 | -3.240 | ..... | -6.836 | -7.089 | -7.356 | -7.859 | -7.949 |
| | +1.675 | +1.359 | -3.535 | -4.556 | -3.888 | ..... | -7.329 | -7.560 | -7.800 | -8.240 | -8.317 |
| | +1.061 | +0.737 | -4.159 | -5.151 | -4.504 | ..... | -7.759 | -7.965 | -8.177 | -8.550 | -8.613 |
| | +0.431 | +0.103 | -4.753 | -5.707 | -5.086 | ..... | -8.125 | -8.305 | -8.486 | -8.789 | -8.836 |
| 1736 Jan. 0 | +0.642 | +0.315 | -4.559 | -5.528 | -4.897 | ..... | -8.011 | -8.199 | -8.392 | -8.719 | -8.769 |
| | +0.008 | -0.321 | -5.127 | -6.051 | -5.450 | ..... | -8.329 | -8.491 | -8.651 | -8.905 | -8.940 |
| | -0.621 | -0.949 | -5.644 | -6.517 | -5.951 | ..... | -8.573 | -8.706 | -8.833 | -9.013 | -9.033 |
| | -1.244 | -1.568 | -6.113 | -6.927 | -6.400 | ..... | -8.742 | -8.846 | -8.938 | -9.043 | -9.047 |
| | -1.861 | -2.180 | -6.531 | -7.281 | -6.798 | ..... | -8.837 | -8.909 | -8.966 | -8.994 | -8.982 |
| 1737 Jan. 0 | -1.658 | -1.979 | -6.398 | -7.171 | -6.673 | ..... | -8.815 | -8.897 | -8.966 | -9.019 | -9.014 |
| | -2.264 | -2.578 | -6.778 | -7.480 | -7.030 | ..... | -8.856 | -8.907 | -8.940 | -8.916 | -8.894 |
| | -2.845 | -3.148 | -7.096 | -7.722 | -7.323 | ..... | -8.821 | -8.841 | -8.838 | -8.737 | -8.700 |
| | -3.401 | -3.691 | -7.353 | -7.897 | -7.552 | ..... | -8.710 | -8.698 | -8.660 | -8.483 | -8.431 |
| | -3.932 | -4.205 | -7.547 | -8.005 | -7.717 | ..... | -8.522 | -8.479 | -8.405 | -8.154 | -8.087 |

TABLE II.—*Lunar Nutation.*

| | 46 Aurige | β Ursae maj. | ψ Ursae maj. | γ Ursae maj. | ϵ Ursae maj. | δ Ursae maj. | η Ursae maj. | β Draconis | ϵ Herculis | δ Draconis | γ Draconis | β Cassiopeiae |
|------|-----------|--------------------|-------------------|---------------------|-----------------------|---------------------|-------------------|------------------|---------------------|-------------------|-------------------|---------------------|
| 1727 | Jan. 0 | +8.860 | +3.399 | +3.073 | +1.385 | -1.030 | -2.207 | -3.088 | -8.652 | -8.711 | -8.812 | -8.818 -0.789 |
| | Apr. 10 | +8.885 | +2.840 | +2.505 | +0.789 | -1.629 | -2.790 | -3.652 | -8.781 | -8.820 | -8.876 | -8.879 -0.187 |
| | Jul. 19 | +8.838 | +2.262 | +1.921 | +0.190 | -2.210 | -3.346 | -4.182 | -8.837 | -8.857 | -8.868 | -8.867 +0.411 |
| | Oct. 27 | +8.718 | +1.665 | +1.322 | -0.411 | -2.773 | -3.875 | -4.678 | -8.820 | -8.821 | -8.787 | -8.782 +1.007 |
| | Dec. 66 | +8.526 | +1.049 | +0.706 | -1.013 | -3.318 | -4.377 | -5.139 | -8.731 | -8.712 | -8.634 | -8.625 +1.599 |
| | | | | | | | | | | | | |
| 1728 | Jan. 0 | +8.597 | +1.254 | +0.911 | -0.814 | -3.140 | -4.213 | -4.988 | -8.768 | -8.756 | -8.693 | -8.685 +1.403 |
| | Apr. 10 | +8.355 | +0.631 | +0.290 | -1.411 | -3.667 | -4.691 | -5.423 | -8.629 | -8.598 | -8.490 | -8.491 +1.987 |
| | Jul. 19 | +8.047 | +0.008 | -0.329 | -1.993 | -4.160 | -5.127 | -5.810 | -8.421 | -8.370 | -8.219 | -8.204 +2.551 |
| | Oct. 27 | +7.673 | -0.617 | -0.947 | -2.560 | -4.621 | -5.522 | -6.150 | -8.143 | -8.073 | -7.880 | -7.824 +3.095 |
| | Dec. 66 | +7.232 | -1.243 | -1.563 | -3.111 | -5.048 | -5.875 | -6.441 | -7.796 | -7.707 | -7.473 | -7.351 +3.619 |
| | | | | | | | | | | | | |
| 1729 | Jan. 0 | +7.387 | -1.035 | -1.358 | -2.930 | -4.910 | -5.763 | -6.350 | -7.921 | -7.838 | -7.618 | -7.597 +3.448 |
| | Apr. 10 | +6.903 | -1.656 | -1.967 | -3.466 | -5.310 | -6.084 | -6.606 | -7.529 | -7.427 | -7.168 | -7.143 +3.953 |
| | Jul. 19 | +6.366 | -2.260 | -2.556 | -3.969 | -5.664 | -6.354 | -6.807 | -7.077 | -6.958 | -6.661 | -6.634 +4.422 |
| | Oct. 27 | +5.775 | -2.846 | -3.125 | -4.441 | -5.972 | -6.571 | -6.952 | -6.566 | -6.431 | -6.099 | -6.069 +4.856 |
| | Dec. 66 | +5.130 | -3.414 | -3.674 | -4.881 | -6.233 | -6.736 | -7.041 | -5.995 | -5.845 | -5.480 | -5.448 +5.255 |
| | | | | | | | | | | | | |
| 1730 | Jan. 0 | +5.350 | -3.227 | -3.494 | -4.738 | -6.152 | -6.688 | -7.018 | -6.193 | -6.047 | -5.694 | -5.661 +5.126 |
| | Apr. 10 | +4.676 | -3.778 | -4.024 | -5.152 | -6.380 | -6.816 | -7.068 | -5.586 | -5.428 | -5.043 | -5.008 +5.497 |
| | Jul. 19 | +3.966 | -4.295 | -4.518 | -5.521 | -6.553 | -6.887 | -7.059 | -4.937 | -4.766 | -4.354 | -4.317 +5.819 |
| | Oct. 27 | +3.221 | -4.777 | -4.976 | -5.845 | -6.672 | -6.901 | -6.991 | -4.245 | -4.063 | -3.626 | -3.588 +6.094 |
| | Dec. 66 | +2.440 | -5.224 | -5.397 | -6.124 | -6.737 | -6.857 | -6.864 | -3.511 | -3.317 | -2.860 | -2.821 +6.320 |
| | | | | | | | | | | | | |
| 1731 | Jan. 0 | ..... | -5.081 | ..... | -6.037 | -6.722 | -6.878 | -6.914 | -3.762 | ..... | ..... | -3.081 +6.251 |
| | Apr. 10 | ..... | -5.518 | ..... | -6.287 | -6.739 | -6.777 | -6.723 | -2.948 | ..... | ..... | -2.237 +6.444 |
| | Jul. 19 | ..... | -5.870 | ..... | -6.472 | -6.719 | -6.656 | -6.525 | -2.228 | ..... | ..... | -1.496 +6.579 |
| | Oct. 27 | ..... | -6.136 | ..... | -6.593 | -6.664 | -6.515 | -6.319 | -1.601 | ..... | ..... | -0.855 +6.656 |
| | Dec. 66 | ..... | -6.317 | ..... | -6.649 | -6.573 | -6.354 | -6.106 | -1.069 | ..... | ..... | -0.316 +6.676 |
| | | | | | | | | | | | | |
| 1732 | Jan. 0 | ..... | -6.312 | ..... | -6.650 | -6.582 | -6.366 | -6.120 | -1.097 | ..... | ..... | -0.344 +6.680 |
| | Apr. 10 | ..... | -6.591 | ..... | -6.706 | -6.376 | -6.035 | -5.696 | -0.139 | ..... | ..... | +0.621 +6.670 |
| | Jul. 19 | ..... | -6.796 | ..... | -6.700 | -6.126 | -5.671 | -5.249 | +0.761 | ..... | ..... | +1.522 +6.602 |
| | Oct. 27 | ..... | -6.925 | ..... | -6.631 | -5.833 | -5.274 | -4.777 | +1.604 | ..... | ..... | +2.358 +6.477 |
| | Dec. 66 | ..... | -6.981 | ..... | -6.500 | -5.497 | -4.846 | -4.282 | +2.389 | ..... | ..... | +3.129 +6.295 |
| | | | | | | | | | | | | |
| 1733 | Jan. 0 | ..... | -6.967 | ..... | -6.549 | -5.617 | -4.997 | -4.456 | +2.119 | ..... | ..... | +2.864 +6.361 |
| | Apr. 10 | ..... | -6.989 | ..... | -6.383 | -5.243 | -4.530 | -3.923 | +2.919 | ..... | ..... | +3.647 +6.141 |
| | Jul. 19 | ..... | -6.951 | ..... | -6.162 | -4.826 | -4.026 | -3.359 | +3.690 | ..... | ..... | +4.394 +5.869 |
| | Oct. 27 | ..... | -6.853 | ..... | -5.887 | -4.366 | -3.487 | -2.765 | +4.431 | ..... | ..... | +5.104 +5.546 |
| | Dec. 66 | ..... | -6.696 | ..... | -5.558 | -3.864 | -2.911 | -2.140 | +5.142 | ..... | ..... | +5.778 +5.172 |
| | | | | | | | | | | | | |
| 1734 | Jan. 0 | ..... | -6.755 | ..... | -5.673 | -4.035 | -3.107 | -2.351 | +4.908 | ..... | ..... | +5.557 +5.302 |
| | Apr. 10 | ..... | -6.557 | ..... | -5.311 | -3.509 | -2.512 | -1.712 | +5.591 | ..... | ..... | +6.198 +4.896 |
| | Jul. 19 | ..... | -6.304 | ..... | -4.905 | -2.955 | -1.900 | -1.062 | +6.220 | ..... | ..... | +6.782 +4.450 |
| | Oct. 27 | ..... | -5.995 | ..... | -4.455 | -2.375 | -1.270 | -0.401 | +6.797 | ..... | ..... | +7.308 +3.964 |
| | Dec. 66 | ..... | -5.630 | ..... | -3.962 | -1.767 | -0.622 | +0.270 | +7.320 | ..... | ..... | +7.777 +3.439 |
| | | | | | | | | | | | | |
| 1735 | Jan. 0 | ..... | -5.756 | ..... | -4.130 | -1.971 | -0.840 | +0.046 | +7.151 | ..... | ..... | +7.628 +3.617 |
| | Apr. 10 | ..... | -5.358 | ..... | -3.612 | -1.352 | -0.186 | +0.717 | +7.633 | ..... | ..... | +8.051 +3.070 |
| | Jul. 19 | ..... | -4.916 | ..... | -3.067 | -0.725 | +0.464 | +1.376 | +8.045 | ..... | ..... | +8.402 +2.500 |
| | Oct. 27 | ..... | -4.431 | ..... | -2.494 | -0.091 | +1.111 | +2.025 | +8.388 | ..... | ..... | +8.680 +1.908 |
| | Dec. 66 | ..... | -3.901 | ..... | -1.894 | +0.550 | +1.754 | +2.662 | +8.661 | ..... | ..... | +8.885 +1.294 |
| | | | | | | | | | | | | |
| 1736 | Jan. 0 | ..... | -4.081 | ..... | -2.096 | +0.336 | +1.540 | +2.452 | +8.577 | ..... | ..... | +8.825 +1.500 |
| | Apr. 10 | ..... | -3.529 | ..... | -1.484 | +0.975 | +2.174 | +3.074 | +8.799 | ..... | ..... | +8.978 +0.877 |
| | Jul. 19 | ..... | -2.950 | ..... | -0.864 | +1.599 | +2.784 | +3.665 | +8.943 | ..... | ..... | +9.051 +0.252 |
| | Oct. 27 | ..... | -2.346 | ..... | -0.236 | +2.210 | +3.370 | +4.224 | +9.008 | ..... | ..... | +9.046 -0.376 |
| | Dec. 66 | ..... | -1.715 | ..... | +0.399 | +2.806 | +3.931 | +4.751 | +8.996 | ..... | ..... | +8.962 -1.005 |
| | | | | | | | | | | | | |
| 1737 | Jan. 0 | ..... | -1.926 | ..... | +0.188 | +2.610 | +3.747 | +4.580 | +9.010 | ..... | ..... | +9.000 -0.797 |
| | Apr. 10 | ..... | -1.285 | ..... | +0.821 | +3.190 | +4.285 | +5.079 | +8.944 | ..... | ..... | +8.862 -1.421 |
| | Jul. 19 | ..... | -0.640 | ..... | +1.440 | +3.737 | +4.781 | +5.529 | +8.801 | ..... | ..... | +8.649 -2.026 |
| | Oct. 27 | ..... | +0.010 | ..... | +2.046 | +4.251 | +5.235 | +5.931 | +8.584 | ..... | ..... | +8.361 -2.614 |
| | Dec. 66 | ..... | +0.664 | ..... | +2.639 | +4.732 | +5.647 | +6.284 | +8.290 | ..... | ..... | +7.999 -3.183 |
| | | | | | | | | | | | | |

CONTINUATION OF TABLE II.—*Lunar Nutation.*

| | λ Cassiopeia | α Cassiopeia | τ Persei | α Persei | γ Persei | δ Persei | 9 Aurigæ | α Aurigæ | 18 Camelop. | δ Aurigæ | 35 Camelop. |
|-------------|----------------------|---------------------|---------------|-----------------|-----------------|-----------------|----------|-----------------|-------------|-----------------|-------------|
| 1738 Jan. 0 | -3.759 | -4.039 | -7.490 | -7.978 | -7.670 | ..... | -8.594 | -8.561 | -8.499 | -8.272 | -8.210 |
| | -4.266 | -4.528 | -7.639 | -8.037 | -7.789 | ..... | -8.355 | -8.291 | -8.193 | -7.894 | -7.816 |
| | -4.731 | -4.973 | -7.721 | -8.027 | -7.840 | ..... | -8.046 | -7.952 | -7.820 | -7.451 | -7.360 |
| | -5.154 | -5.375 | -7.736 | -7.947 | -7.822 | ..... | -7.669 | -7.545 | -7.380 | -6.945 | -6.841 |
| | -5.534 | -5.732 | -7.683 | -7.798 | -7.736 | ..... | -7.222 | -7.070 | -6.873 | -6.374 | -6.260 |
| 1739 Jan. 0 | -5.413 | -5.618 | -7.709 | -7.856 | -7.773 | ..... | -7.378 | -7.235 | -7.050 | -6.571 | -6.460 |
| | -5.761 | -5.991 | -7.611 | -7.660 | -7.641 | ..... | -6.889 | -6.717 | -6.501 | -5.964 | -5.842 |
| | -6.055 | -6.209 | -7.448 | -7.401 | -7.446 | ..... | -6.346 | -6.149 | -5.904 | -5.312 | -5.180 |
| | -6.297 | -6.423 | -7.221 | -7.079 | -7.187 | ..... | -5.750 | -5.528 | -5.258 | -4.617 | -4.476 |
| | -6.485 | -6.583 | -6.931 | -6.694 | -6.865 | ..... | -5.100 | -4.857 | -4.563 | -3.877 | -3.728 |
| 1740 Jan. 0 | | -6.537 | -7.035 | -6.830 | -6.978 | ..... | -5.322 | -5.086 | -4.799 | -4.127 | -3.980 |
| | | -6.663 | -6.734 | -6.440 | -6.646 | ..... | -4.686 | -4.430 | -4.123 | -3.411 | -3.258 |
| | | -6.720 | -6.321 | -5.932 | -6.201 | ..... | -3.932 | -3.656 | -3.329 | -2.583 | -2.424 |
| | | -6.711 | -5.798 | -5.308 | -5.642 | ..... | -3.057 | -2.764 | -2.419 | -1.643 | -1.480 |
| | | -6.633 | -5.163 | -4.566 | -4.970 | ..... | -2.065 | -1.753 | -1.391 | -0.590 | -0.424 |
| 1741 Jan. 0 | | -6.628 | ..... | -4.581 | ..... | ..... | -1.777 | ..... | ..... | -0.615 | -0.449 |
| | | -6.582 | ..... | -4.263 | ..... | ..... | -1.352 | ..... | ..... | -0.175 | -0.007 |
| | | -6.464 | ..... | -3.801 | ..... | ..... | -0.772 | ..... | ..... | +0.414 | +0.582 |
| | | -6.275 | ..... | -3.197 | ..... | ..... | -0.039 | ..... | ..... | +1.152 | +1.319 |
| | | -6.013 | ..... | -2.449 | ..... | ..... | +0.848 | ..... | ..... | +2.040 | +2.203 |
| 1742 Jan. 0 | | -6.103 | ..... | -2.682 | ..... | ..... | +0.578 | ..... | ..... | +1.772 | +1.936 |
| | | -5.817 | ..... | -1.977 | ..... | ..... | +1.385 | ..... | ..... | +2.569 | +2.731 |
| | | -5.486 | ..... | -1.264 | ..... | ..... | +2.171 | ..... | ..... | +3.337 | +3.494 |
| | | -5.110 | ..... | -0.542 | ..... | ..... | +2.938 | ..... | ..... | +4.075 | +4.226 |
| | | -4.688 | ..... | +0.188 | ..... | ..... | +3.684 | ..... | ..... | +4.783 | +4.926 |
| 1743 Jan. 0 | | -4.833 | ..... | -0.054 | ..... | ..... | +3.438 | ..... | ..... | +4.551 | +4.697 |
| | | -4.386 | ..... | +0.674 | ..... | ..... | +4.164 | ..... | ..... | +5.231 | +5.369 |
| | | -3.908 | ..... | +1.389 | ..... | ..... | +4.848 | ..... | ..... | +5.861 | +5.990 |
| | | -3.399 | ..... | +2.091 | ..... | ..... | +5.489 | ..... | ..... | +6.442 | +6.560 |
| | | -2.858 | ..... | +2.781 | ..... | ..... | +6.088 | ..... | ..... | +6.973 | +7.080 |
| 1744 Jan. 0 | | -3.041 | ..... | +2.553 | ..... | ..... | +5.895 | ..... | ..... | +6.802 | +6.914 |
| | | -2.485 | ..... | +3.226 | ..... | ..... | +6.461 | ..... | ..... | +7.294 | +7.393 |
| | | -1.914 | ..... | +3.867 | ..... | ..... | +6.968 | ..... | ..... | +7.722 | +7.808 |
| | | -1.328 | ..... | +4.475 | ..... | ..... | +7.418 | ..... | ..... | +8.085 | +8.158 |
| | | -0.728 | ..... | +5.050 | ..... | ..... | +7.809 | ..... | ..... | +8.384 | +8.444 |
| 1745 Jan. 0 | | -0.929 | ..... | +4.863 | ..... | ..... | +7.686 | ..... | ..... | +8.292 | +8.357 |
| | | -0.325 | ..... | +5.409 | ..... | ..... | +8.034 | ..... | ..... | +8.545 | +8.595 |
| | | +0.277 | ..... | +5.907 | ..... | ..... | +8.313 | ..... | ..... | +8.725 | +8.761 |
| | | +0.876 | ..... | +6.356 | ..... | ..... | +8.524 | ..... | ..... | +8.833 | +8.855 |
| | | +1.473 | ..... | +6.757 | ..... | ..... | +8.666 | ..... | ..... | +8.869 | +8.876 |
| 1746 Jan. 0 | | +1.276 | ..... | +6.630 | ..... | ..... | +8.627 | ..... | ..... | +8.865 | +8.877 |
| | | +1.865 | ..... | +6.993 | ..... | ..... | +8.721 | ..... | ..... | +8.853 | +8.849 |
| | | +2.435 | ..... | +7.296 | ..... | ..... | +8.743 | ..... | ..... | +8.768 | +8.749 |
| | | +2.985 | ..... | +7.539 | ..... | ..... | +8.693 | ..... | ..... | +8.611 | +8.577 |
| | | +3.515 | ..... | +7.723 | ..... | ..... | +8.571 | ..... | ..... | +8.381 | +8.333 |
| 1747 Jan. 0 | | +3.342 | ..... | +7.670 | ..... | ..... | +8.621 | ..... | ..... | +8.466 | +8.423 |
| | | +3.854 | ..... | +7.810 | ..... | ..... | +8.451 | ..... | ..... | +8.189 | +8.132 |
| | | +4.331 | ..... | +7.886 | ..... | ..... | +8.213 | ..... | ..... | +7.846 | +7.776 |
| | | +4.773 | ..... | +7.897 | ..... | ..... | +7.907 | ..... | ..... | +7.439 | +7.355 |
| | | +5.181 | ..... | +7.844 | ..... | ..... | +7.533 | ..... | ..... | +6.966 | +6.870 |

CONTINUATION OF TABLE II.—*Lunar Nutation.*

| | 46 Aurigae | β Urse maj. | ψ Urse maj. | γ Urse maj. | ϵ Urse maj. | δ Urse maj. | η Urse maj. | β Draconis | ι Herculis | ξ Draconis | γ Draconis | β Cassiopeia |
|-------------|------------|-------------------|------------------|--------------------|----------------------|--------------------|------------------|------------------|------------------|----------------|-------------------|--------------------|
| 1738 Jan. 0 | | +0.448 | ..... | +2.445 | +4.577 | +5.516 | +6.172 | +8.397 | ..... | ..... | +8.129 | -2.996 |
| Apr. 10 | | +1.099 | ..... | +3.022 | +5.030 | +5.894 | +6.488 | +8.053 | ..... | ..... | +7.720 | -3.546 |
| Jul. 19 | | +1.733 | ..... | +3.567 | +5.435 | +6.217 | +6.744 | +7.644 | ..... | ..... | +7.248 | -4.060 |
| Oct. 27 | | +2.351 | ..... | +4.080 | +5.791 | +6.485 | +6.942 | +7.169 | ..... | ..... | +6.715 | -4.537 |
| Dec. 66 | | +2.952 | ..... | +4.561 | +6.099 | +6.699 | +7.080 | +6.628 | ..... | ..... | +6.119 | -4.978 |
| 1739 Jan. 0 | | +2.755 | ..... | +4.405 | +6.002 | +6.634 | +7.041 | +6.816 | ..... | ..... | +6.324 | -4.836 |
| Apr. 10 | | +3.339 | ..... | +4.859 | +6.274 | +6.809 | +7.137 | +6.236 | ..... | ..... | +5.693 | -5.248 |
| Jul. 19 | | +3.888 | ..... | +5.266 | +6.490 | +6.923 | +7.171 | +5.610 | ..... | ..... | +5.020 | -5.610 |
| Oct. 27 | | +4.402 | ..... | +5.626 | +6.649 | +6.977 | +7.144 | +4.937 | ..... | ..... | +4.305 | -5.923 |
| Dec. 66 | | +4.881 | ..... | +5.940 | +6.752 | +6.970 | +7.054 | +4.217 | ..... | ..... | +3.549 | -6.185 |
| 1740 Jan. 0 | | +4.726 | ..... | +5.841 | +6.724 | +6.979 | +7.091 | +4.464 | ..... | ..... | +3.806 | -6.103 |
| Apr. 10 | | +5.161 | ..... | +6.116 | +6.795 | +6.947 | +6.979 | +3.765 | ..... | ..... | +3.076 | -6.329 |
| Jul. 19 | | +5.577 | ..... | +6.344 | +6.791 | +6.828 | +6.771 | +2.952 | ..... | ..... | +2.236 | -6.500 |
| Oct. 27 | | +5.973 | ..... | +6.525 | +6.712 | +6.621 | +6.468 | +2.024 | ..... | ..... | +1.287 | -6.618 |
| Dec. 66 | | +6.350 | ..... | +6.660 | +6.557 | +6.326 | +6.069 | +0.982 | ..... | ..... | +0.229 | -6.681 |
| 1741 Jan. 0 | | +6.334 | ..... | +6.650 | +6.556 | +6.328 | +6.074 | +1.009 | ..... | ..... | +0.256 | -6.672 |
| Apr. 10 | | +6.479 | ..... | +6.692 | +6.478 | +6.192 | +5.894 | +0.572 | ..... | ..... | -0.186 | -6.684 |
| Jul. 19 | | +6.616 | ..... | +6.691 | +6.318 | +5.958 | +5.605 | -0.016 | ..... | ..... | -0.775 | -6.644 |
| Oct. 27 | | +6.746 | ..... | +6.647 | +6.077 | +5.626 | +5.206 | -0.755 | ..... | ..... | -1.518 | -6.551 |
| Dec. 66 | | +6.868 | ..... | +6.561 | +5.755 | +5.195 | +4.697 | -1.644 | ..... | ..... | -2.391 | -6.405 |
| 1742 Jan. 0 | | +6.841 | ..... | +6.598 | +5.864 | +5.335 | +4.861 | -1.374 | ..... | ..... | -2.125 | -6.460 |
| Apr. 10 | | +6.901 | ..... | +6.468 | +5.523 | +4.899 | +4.357 | -2.177 | ..... | ..... | -2.914 | -6.276 |
| Jul. 19 | | +6.902 | ..... | +6.285 | +5.141 | +4.428 | +3.822 | -2.954 | ..... | ..... | -3.671 | -6.042 |
| Oct. 27 | | +6.847 | ..... | +6.051 | +4.717 | +3.922 | +3.258 | -3.704 | ..... | ..... | -4.395 | -5.758 |
| Dec. 66 | | +6.773 | ..... | +5.764 | +4.252 | +3.380 | +2.663 | -4.427 | ..... | ..... | -5.087 | -5.425 |
| 1743 Jan. 0 | | +6.777 | ..... | +5.865 | +4.411 | +3.564 | +2.864 | -4.189 | ..... | ..... | -4.860 | -5.542 |
| Apr. 10 | | +6.626 | ..... | +5.547 | +3.922 | +3.003 | +2.255 | -4.886 | ..... | ..... | -5.523 | -5.178 |
| Jul. 19 | | +6.422 | ..... | +5.187 | +3.406 | +2.424 | +1.634 | -5.537 | ..... | ..... | -6.133 | -4.776 |
| Oct. 27 | | +6.166 | ..... | +4.785 | +2.863 | +1.826 | +1.001 | -6.141 | ..... | ..... | -6.692 | -4.336 |
| Dec. 66 | | +5.857 | ..... | +4.341 | +2.293 | +1.210 | +0.355 | -6.698 | ..... | ..... | -7.198 | -3.858 |
| 1744 Jan. 0 | | +5.965 | ..... | +4.492 | +2.486 | +1.417 | +0.571 | -6.517 | ..... | ..... | -7.035 | -4.020 |
| Apr. 10 | | +5.624 | ..... | +4.024 | +1.904 | +0.794 | -0.076 | -7.036 | ..... | ..... | -7.501 | -3.521 |
| Jul. 19 | | +5.240 | ..... | +3.528 | +1.312 | +0.170 | -0.716 | -7.492 | ..... | ..... | -7.901 | -2.997 |
| Oct. 27 | | +4.814 | ..... | +3.003 | +0.710 | -0.454 | -1.349 | -7.886 | ..... | ..... | -8.236 | -2.450 |
| Dec. 66 | | +4.346 | ..... | +2.451 | +0.099 | -1.078 | -1.975 | -8.217 | ..... | ..... | -8.505 | -1.878 |
| 1745 Jan. 0 | | +4.506 | ..... | +2.637 | +0.301 | -0.871 | -1.768 | -8.113 | ..... | ..... | -8.423 | -2.071 |
| Apr. 10 | | +4.013 | ..... | +2.071 | -0.311 | -1.490 | -2.383 | -8.399 | ..... | ..... | -8.645 | -1.489 |
| Jul. 19 | | +3.491 | ..... | +1.492 | -0.916 | -2.090 | -2.974 | -8.614 | ..... | ..... | -8.794 | -0.900 |
| Oct. 27 | | +2.942 | ..... | +0.902 | -1.513 | -2.674 | -3.540 | -8.758 | ..... | ..... | -8.872 | -0.304 |
| Dec. 66 | | +2.364 | ..... | +0.299 | -2.102 | -3.239 | -4.081 | -8.831 | ..... | ..... | -8.877 | +0.299 |
| 1746 Jan. 0 | | +2.558 | ..... | +0.500 | -1.904 | -3.052 | -3.903 | -8.815 | ..... | ..... | -8.883 | +0.099 |
| Apr. 10 | | +1.966 | ..... | -0.105 | -2.484 | -3.601 | -4.423 | -8.839 | ..... | ..... | -8.839 | +0.701 |
| Jul. 19 | | +1.362 | ..... | -0.704 | -3.038 | -4.116 | -4.902 | -8.791 | ..... | ..... | -8.722 | +1.293 |
| Oct. 27 | | +0.747 | ..... | -1.298 | -3.567 | -4.598 | -5.341 | -8.670 | ..... | ..... | -8.534 | +1.875 |
| Dec. 66 | | +0.119 | ..... | -1.887 | -4.071 | -5.046 | -5.740 | -8.476 | ..... | ..... | -8.273 | +2.447 |
| 1747 Jan. 0 | | +0.329 | ..... | -1.692 | -3.907 | -4.901 | -5.612 | -8.549 | ..... | ..... | -8.368 | +2.258 |
| Apr. 10 | | -0.300 | ..... | -2.272 | -4.390 | -5.322 | -5.982 | -8.309 | ..... | ..... | -8.061 | +2.816 |
| Jul. 19 | | -0.923 | ..... | -2.829 | -4.833 | -5.697 | -6.296 | -8.002 | ..... | ..... | -7.691 | +3.350 |
| Oct. 27 | | -1.540 | ..... | -3.364 | -5.237 | -6.026 | -6.564 | -7.628 | ..... | ..... | -7.256 | +3.860 |
| Dec. 66 | | -2.150 | ..... | -3.877 | -5.602 | -6.308 | -6.777 | -7.187 | ..... | ..... | -6.756 | +4.346 |

TABLE III.—*Solar Nutation.*

| | λ Cassiopeia | α Cassiopeia | τ Persel | α Persel | γ Persel | δ Persel | η Aurige | α Aurige | ι Camelop. | δ Aurige | ς Camelop. |
|--------|----------------------|---------------------|---------------|-----------------|-----------------|-----------------|---------------|-----------------|------------------|-----------------|----------------------|
| Jan. | +0.142 | +0.122 | -0.199 | -0.267 | -0.223 | -0.308 | -0.458 | -0.474 | -0.492 | -0.524 | -0.529 |
| | +0.311 | +0.294 | -0.008 | -0.080 | -0.033 | -0.125 | -0.308 | -0.331 | -0.356 | -0.405 | -0.414 |
| | +0.442 | +0.431 | +0.184 | +0.116 | +0.162 | +0.072 | -0.121 | -0.147 | -0.175 | -0.236 | -0.249 |
| | +0.517 | +0.512 | +0.352 | +0.298 | +0.335 | +0.261 | +0.082 | +0.056 | +0.027 | -0.038 | -0.051 |
| Feb. 9 | +0.529 | +0.532 | +0.478 | +0.443 | +0.467 | +0.417 | +0.273 | +0.251 | +0.224 | +0.164 | +0.152 |
| 19 | +0.476 | +0.485 | +0.543 | +0.532 | +0.540 | +0.520 | +0.431 | +0.414 | +0.393 | +0.345 | +0.335 |
| Mar. | +0.365 | +0.380 | +0.543 | +0.558 | +0.548 | +0.561 | +0.536 | +0.527 | +0.515 | +0.484 | +0.477 |
| | +0.211 | +0.231 | +0.478 | +0.515 | +0.491 | +0.535 | +0.575 | +0.575 | +0.573 | +0.564 | +0.561 |
| | +0.033 | +0.054 | +0.356 | +0.412 | +0.375 | +0.445 | +0.547 | +0.555 | +0.564 | +0.576 | +0.577 |
| | -0.148 | -0.128 | +0.192 | +0.261 | +0.216 | +0.302 | +0.454 | +0.471 | +0.488 | +0.521 | +0.527 |
| Apr. | -0.311 | -0.294 | +0.008 | +0.082 | +0.033 | +0.126 | +0.309 | +0.331 | +0.356 | +0.406 | +0.416 |
| | -0.437 | -0.425 | -0.176 | -0.107 | -0.152 | -0.064 | +0.129 | +0.155 | +0.183 | +0.245 | +0.257 |
| | -0.513 | -0.508 | -0.339 | -0.283 | -0.320 | -0.245 | -0.064 | -0.038 | -0.008 | +0.056 | +0.069 |
| | -0.531 | -0.533 | -0.464 | -0.426 | -0.452 | -0.398 | -0.249 | -0.226 | -0.199 | -0.138 | -0.125 |
| May 10 | -0.490 | -0.498 | -0.536 | -0.521 | -0.532 | -0.507 | -0.401 | -0.388 | -0.368 | -0.316 | -0.304 |
| 30 | -0.395 | -0.409 | -0.549 | -0.557 | -0.553 | -0.558 | -0.517 | -0.506 | -0.493 | -0.457 | -0.449 |
| June | -0.256 | -0.275 | -0.501 | -0.533 | -0.513 | -0.548 | -0.571 | -0.569 | -0.565 | -0.549 | -0.544 |
| | -0.090 | -0.111 | -0.398 | -0.450 | -0.417 | -0.478 | -0.563 | -0.569 | -0.574 | -0.580 | -0.579 |
| | +0.086 | +0.066 | -0.253 | -0.318 | -0.276 | -0.356 | -0.493 | -0.507 | -0.521 | -0.547 | -0.552 |
| | +0.253 | +0.234 | -0.079 | -0.152 | -0.105 | -0.195 | -0.369 | -0.389 | -0.412 | -0.455 | -0.464 |
| July | +0.391 | +0.377 | +0.103 | +0.032 | +0.079 | -0.013 | -0.204 | -0.230 | -0.257 | -0.314 | -0.325 |
| | +0.488 | +0.479 | +0.274 | +0.212 | +0.254 | +0.171 | -0.017 | -0.044 | -0.074 | -0.137 | -0.151 |
| | +0.531 | +0.529 | +0.416 | +0.369 | +0.411 | +0.336 | +0.172 | +0.147 | +0.118 | +0.055 | +0.041 |
| | +0.515 | +0.520 | +0.512 | +0.486 | +0.504 | +0.465 | +0.342 | +0.322 | +0.298 | +0.241 | +0.229 |
| 28 | +0.442 | +0.453 | +0.551 | +0.549 | +0.551 | +0.543 | +0.476 | +0.461 | +0.444 | +0.401 | +0.392 |
| Sept. | +0.319 | +0.335 | +0.528 | +0.551 | +0.537 | +0.560 | +0.556 | +0.550 | +0.542 | +0.517 | +0.511 |
| | +0.158 | +0.178 | +0.445 | +0.489 | +0.461 | +0.513 | +0.574 | +0.577 | +0.578 | +0.575 | +0.574 |
| | -0.021 | 0.000 | +0.311 | +0.371 | +0.333 | +0.406 | +0.525 | +0.536 | +0.548 | +0.567 | +0.569 |
| | -0.199 | -0.180 | +0.139 | +0.210 | +0.164 | +0.253 | +0.416 | +0.434 | +0.454 | +0.492 | +0.499 |
| 17 | -0.354 | -0.339 | -0.049 | +0.023 | -0.025 | +0.068 | +0.256 | +0.280 | +0.306 | +0.360 | +0.371 |
| 27 | -0.469 | -0.458 | -0.234 | -0.168 | -0.212 | -0.126 | +0.066 | +0.091 | +0.121 | +0.184 | +0.197 |
| Nov. 6 | -0.527 | -0.524 | -0.391 | -0.340 | -0.374 | -0.305 | -0.133 | -0.109 | -0.079 | -0.015 | -0.002 |
| 16 | -0.521 | -0.525 | -0.501 | -0.471 | -0.491 | -0.449 | -0.318 | -0.297 | -0.272 | -0.213 | -0.201 |
| 26 | -0.452 | -0.463 | -0.550 | -0.545 | -0.549 | -0.537 | -0.464 | -0.449 | -0.430 | -0.386 | -0.377 |
| Dec. 6 | -0.326 | -0.344 | -0.531 | -0.552 | -0.540 | -0.560 | -0.553 | -0.546 | -0.538 | -0.512 | -0.506 |
| 16 | -0.160 | -0.181 | -0.447 | -0.491 | -0.463 | -0.514 | -0.574 | -0.576 | -0.578 | -0.575 | -0.573 |
| 26 | +0.026 | +0.004 | -0.307 | -0.368 | -0.328 | -0.404 | -0.523 | -0.535 | -0.546 | -0.565 | -0.569 |
| 36 | +0.209 | +0.189 | -0.129 | -0.200 | -0.153 | -0.243 | -0.408 | -0.427 | -0.447 | -0.486 | -0.494 |

TABLE III.—*Solar Nutation.*

| | 46 Aurigae | β Ursae maj. | ψ Ursae maj. | γ Ursae maj. | ϵ Ursae maj. | ζ Ursae maj. | η Ursae maj. | δ Draconis | ι Herculis | ξ Draconis | γ Draconis | β Cassiopeiae |
|--------|------------|--------------------|-------------------|---------------------|-----------------------|--------------------|-------------------|-------------------|------------------|----------------|-------------------|---------------------|
| 0 | -0.548 | -0.348 | -0.330 | -0.231 | -0.081 | -0.003 | +0.056 | +0.510 | +0.519 | +0.535 | +0.536 | +0.195 |
| 10 | -0.447 | -0.468 | -0.456 | -0.384 | -0.259 | -0.189 | -0.134 | +0.383 | +0.396 | +0.424 | +0.426 | +0.355 |
| 20 | -0.291 | -0.531 | -0.525 | -0.487 | -0.405 | -0.352 | -0.308 | +0.208 | +0.224 | +0.260 | +0.263 | +0.470 |
| 30 | -0.100 | -0.527 | -0.530 | -0.531 | -0.500 | -0.471 | -0.442 | +0.008 | +0.026 | +0.064 | +0.069 | +0.528 |
| 9 | +0.104 | -0.459 | -0.469 | -0.510 | -0.534 | -0.531 | -0.522 | -0.193 | -0.176 | -0.138 | -0.135 | +0.520 |
| 19 | +0.294 | -0.334 | -0.351 | -0.426 | -0.502 | -0.527 | -0.539 | -0.368 | -0.355 | -0.323 | -0.320 | +0.447 |
| r. 1 | +0.447 | -0.170 | -0.191 | -0.290 | -0.410 | -0.458 | -0.489 | -0.499 | -0.491 | -0.469 | -0.467 | +0.322 |
| 11 | +0.546 | +0.014 | -0.009 | -0.121 | -0.268 | -0.335 | -0.381 | -0.569 | -0.566 | -0.557 | -0.556 | +0.159 |
| 21 | +0.580 | +0.196 | +0.174 | +0.062 | -0.096 | -0.172 | -0.229 | -0.571 | -0.575 | -0.579 | -0.580 | -0.023 |
| 31 | +0.545 | +0.353 | +0.334 | +0.237 | +0.087 | +0.008 | -0.050 | -0.507 | -0.515 | -0.533 | -0.534 | -0.201 |
| r. 10 | +0.448 | +0.468 | +0.456 | +0.383 | +0.258 | +0.188 | +0.133 | -0.384 | -0.397 | -0.424 | -0.427 | -0.355 |
| 20 | +0.299 | +0.529 | +0.523 | +0.484 | +0.400 | +0.345 | +0.300 | -0.217 | -0.233 | -0.269 | -0.272 | -0.466 |
| 30 | +0.117 | +0.530 | +0.532 | +0.531 | +0.494 | +0.462 | +0.433 | -0.026 | -0.044 | -0.083 | -0.086 | -0.525 |
| y 10 | -0.077 | +0.471 | +0.481 | +0.516 | +0.533 | +0.527 | +0.515 | +0.167 | +0.150 | +0.112 | +0.108 | -0.524 |
| 20 | -0.262 | +0.360 | +0.376 | +0.445 | +0.512 | +0.533 | +0.541 | +0.340 | +0.326 | +0.293 | +0.290 | -0.465 |
| 30 | -0.416 | +0.209 | +0.229 | +0.325 | +0.435 | +0.479 | +0.506 | +0.474 | +0.465 | +0.441 | +0.438 | -0.355 |
| ne 9 | -0.526 | +0.036 | +0.058 | +0.169 | +0.311 | +0.373 | +0.415 | +0.557 | +0.553 | +0.540 | +0.538 | -0.205 |
| 19 | -0.577 | -0.141 | -0.118 | -0.005 | +0.151 | +0.226 | +0.280 | +0.578 | +0.580 | +0.579 | +0.579 | -0.034 |
| 29 | -0.565 | -0.302 | -0.282 | -0.178 | -0.023 | +0.055 | +0.114 | +0.536 | +0.543 | +0.556 | +0.558 | +0.140 |
| ly 9 | -0.492 | -0.430 | -0.416 | -0.333 | -0.196 | -0.122 | -0.064 | +0.436 | +0.447 | +0.472 | +0.474 | +0.301 |
| 19 | -0.364 | -0.511 | -0.503 | -0.450 | -0.347 | -0.286 | -0.236 | +0.288 | +0.303 | +0.337 | +0.339 | +0.427 |
| 29 | -0.194 | -0.537 | -0.536 | -0.518 | -0.461 | -0.419 | -0.382 | +0.108 | +0.125 | +0.164 | +0.167 | +0.507 |
| ng. 8 | -0.007 | -0.503 | -0.509 | -0.530 | -0.523 | -0.506 | -0.486 | -0.084 | -0.067 | -0.028 | -0.024 | +0.532 |
| 18 | +0.183 | -0.414 | -0.428 | -0.483 | -0.529 | -0.537 | -0.537 | -0.268 | -0.253 | -0.216 | -0.213 | +0.498 |
| 28 | +0.355 | -0.278 | -0.297 | -0.382 | -0.475 | -0.509 | -0.528 | -0.422 | -0.410 | -0.382 | -0.380 | +0.408 |
| apt. 7 | +0.487 | -0.110 | -0.132 | -0.237 | -0.368 | -0.423 | -0.460 | -0.530 | -0.523 | -0.505 | -0.503 | +0.271 |
| 17 | +0.564 | +0.071 | +0.049 | -0.065 | -0.217 | -0.288 | -0.338 | -0.573 | -0.576 | -0.572 | -0.571 | +0.104 |
| 27 | +0.577 | +0.245 | +0.225 | +0.116 | -0.042 | -0.120 | -0.177 | -0.559 | -0.564 | -0.572 | -0.572 | -0.077 |
| ct. 7 | +0.523 | +0.392 | +0.376 | +0.284 | +0.140 | +0.064 | +0.005 | -0.475 | -0.486 | -0.506 | -0.508 | -0.249 |
| 17 | +0.407 | +0.493 | +0.483 | +0.420 | +0.306 | +0.230 | +0.188 | -0.335 | -0.350 | -0.381 | -0.384 | -0.394 |
| 27 | +0.242 | +0.537 | +0.533 | +0.506 | +0.436 | +0.390 | +0.348 | -0.155 | -0.171 | -0.209 | -0.212 | -0.492 |
| lov. 6 | +0.046 | +0.515 | +0.520 | +0.532 | +0.515 | +0.492 | +0.469 | +0.045 | +0.028 | -0.011 | -0.015 | -0.532 |
| 16 | -0.155 | +0.432 | +0.444 | +0.493 | +0.532 | +0.536 | +0.533 | +0.241 | +0.226 | +0.189 | +0.186 | -0.506 |
| 26 | -0.338 | +0.294 | +0.302 | +0.395 | +0.483 | +0.515 | +0.532 | +0.408 | +0.395 | +0.366 | +0.363 | -0.419 |
| dec. 6 | -0.480 | +0.121 | +0.142 | +0.247 | +0.375 | +0.430 | +0.465 | +0.525 | +0.518 | +0.499 | +0.497 | -0.280 |
| 16 | -0.563 | -0.068 | -0.046 | +0.067 | +0.220 | +0.291 | +0.340 | +0.577 | +0.576 | +0.571 | +0.570 | -0.107 |
| 26 | -0.576 | -0.249 | -0.229 | -0.121 | +0.037 | +0.116 | +0.173 | +0.557 | +0.563 | +0.572 | +0.572 | +0.082 |
| 36 | -0.517 | -0.399 | -0.383 | -0.293 | -0.150 | -0.074 | -0.015 | +0.469 | +0.497 | +0.501 | +0.503 | +0.259 |

TABLE IV.—*Aberration.*

| | λ Cassiopeia | | | α Cassiopeia | | | τ Persei | | | α Persei | | | γ Persei | | |
|-------|--------------|----------|----------------------|--------------|----------|----------------------|----------|----------|----------------------|----------|----------|----------------------|----------|----------|----------------------|
| | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. |
| Jan. | 0 | + 15.234 | - 122 | + 17 | + 15.734 | - 114 | + 14 | + 12.903 | + 39 | - 16 | + 11.219 | + 53 | - 22 | + 12.702 | + 45 |
| | 10 | + 13.846 | - 160 | + 24 | + 14.467 | - 149 | + 22 | + 13.037 | - 7 | - 8 | + 11.556 | + 16 | - 16 | + 12.965 | + 6 |
| | 20 | + 12.026 | - 201 | + 30 | + 12.750 | - 191 | + 28 | + 12.762 | - 47 | + 1 | + 11.530 | - 21 | - 8 | + 12.822 | - 34 |
| | 30 | + 9.835 | - 234 | + 35 | + 10.638 | - 227 | + 33 | + 12.090 | - 86 | + 10 | + 11.145 | - 56 | - 2 | + 12.278 | - 73 |
| Feb. | 9 | + 7.345 | - 260 | + 38 | + 8.202 | - 256 | + 37 | + 11.044 | - 121 | + 18 | + 10.412 | - 89 | + 7 | + 11.356 | - 110 |
| | 19 | + 4.638 | - 277 | + 41 | + 5.522 | - 276 | + 40 | + 9.662 | - 153 | + 25 | + 9.366 | - 119 | + 13 | + 10.087 | - 142 |
| | Mar. 1 | + 1.803 | - 286 | + 42 | + 2.687 | - 287 | + 42 | + 7.992 | - 179 | + 32 | + 8.036 | - 145 | + 21 | + 8.516 | - 170 |
| | 11 | - 1.073 | - 285 | + 42 | - 0.215 | - 289 | + 42 | + 6.088 | - 199 | + 37 | + 6.471 | - 166 | + 26 | + 6.696 | - 192 |
| Apr. | 21 | - 3.902 | - 276 | + 41 | - 3.095 | - 283 | + 41 | + 4.013 | - 213 | + 41 | + 4.720 | - 182 | + 31 | + 4.684 | - 202 |
| | 31 | - 6.599 | - 259 | + 39 | - 5.868 | - 268 | + 39 | + 1.831 | - 220 | + 44 | + 2.839 | - 192 | + 35 | + 2.547 | - 217 |
| | 10 | - 9.087 | - 235 | + 35 | - 8.453 | - 246 | + 36 | - 0.392 | - 221 | + 46 | + 0.887 | - 196 | + 38 | + 0.347 | - 220 |
| | 20 | - 11.299 | - 205 | + 30 | - 10.778 | - 217 | + 31 | - 2.592 | - 216 | + 46 | - 1.081 | - 195 | + 40 | - 1.852 | - 217 |
| May | 30 | - 13.177 | - 169 | + 25 | - 12.784 | - 182 | + 26 | - 4.706 | - 204 | + 45 | - 3.007 | - 188 | + 41 | - 3.985 | - 207 |
| | 10 | - 14.672 | - 129 | + 19 | - 14.419 | - 143 | + 21 | - 6.676 | - 188 | + 43 | - 4.840 | - 176 | + 41 | - 5.996 | - 192 |
| | 20 | - 15.750 | - 86 | + 13 | - 15.642 | - 100 | + 15 | - 8.456 | - 165 | + 42 | - 6.528 | - 159 | + 39 | - 7.829 | - 172 |
| | 30 | - 16.384 | - 41 | + 6 | - 16.424 | - 55 | + 8 | - 9.984 | - 139 | + 35 | - 8.028 | - 139 | + 37 | - 9.438 | - 148 |
| June | 9 | - 16.564 | + 5 | 0 | - 16.751 | - 10 | + 2 | - 11.237 | - 110 | + 30 | - 9.301 | - 115 | + 33 | - 10.781 | - 119 |
| | 19 | - 16.286 | + 50 | - 8 | - 16.614 | + 36 | - 5 | - 12.177 | - 77 | + 24 | - 10.318 | - 87 | + 29 | - 11.825 | - 88 |
| | 29 | - 15.562 | + 94 | - 14 | - 16.022 | + 81 | - 11 | - 12.782 | - 43 | + 18 | - 11.048 | - 58 | + 24 | - 12.543 | - 55 |
| | July 9 | - 14.410 | + 135 | - 20 | - 14.988 | + 124 | - 18 | - 13.035 | - 7 | + 10 | - 11.474 | - 27 | + 17 | - 12.916 | - 20 |
| Aug. | 19 | - 12.861 | + 173 | - 25 | - 13.543 | + 163 | - 23 | - 12.931 | + 28 | + 3 | - 11.587 | + 5 | + 12 | - 12.934 | + 16 |
| | 29 | - 10.954 | + 206 | - 30 | - 11.721 | + 199 | - 28 | - 12.472 | + 64 | - 3 | - 11.379 | + 37 | + 5 | - 12.594 | + 51 |
| | 8 | - 8.739 | + 234 | - 34 | - 9.570 | + 229 | - 32 | - 11.660 | + 97 | - 12 | - 10.855 | + 68 | - 2 | - 11.906 | + 86 |
| | 18 | - 6.273 | + 256 | - 37 | - 7.145 | + 253 | - 35 | - 10.524 | + 129 | - 20 | - 10.027 | + 97 | - 8 | - 10.883 | + 113 |
| Sept. | 28 | - 3.620 | + 271 | - 40 | - 4.507 | + 271 | - 39 | - 9.088 | + 157 | - 26 | - 8.914 | + 124 | - 15 | - 9.550 | + 147 |
| | 7 | - 0.852 | + 279 | - 41 | - 1.731 | + 281 | - 40 | - 7.386 | + 184 | - 32 | - 7.543 | + 148 | - 21 | - 7.939 | + 173 |
| | 17 | + 1.955 | + 279 | - 41 | + 1.109 | + 283 | - 40 | - 5.469 | + 201 | - 35 | - 5.948 | + 169 | - 27 | - 6.093 | + 194 |
| | 27 | + 4.720 | + 270 | - 40 | + 3.934 | + 277 | - 40 | - 3.374 | + 215 | - 41 | - 4.172 | + 184 | - 32 | - 4.061 | + 210 |
| Oct. | 7 | + 7.364 | + 254 | - 38 | + 6.658 | + 263 | - 38 | - 1.172 | + 223 | - 45 | - 2.264 | + 195 | - 36 | - 1.897 | + 220 |
| | 17 | + 9.802 | + 230 | - 34 | + 9.202 | + 241 | - 35 | + 1.077 | + 224 | - 47 | - 0.278 | + 200 | - 39 | + 0.335 | + 223 |
| | 27 | + 11.962 | + 198 | - 29 | + 11.483 | + 211 | - 31 | + 3.306 | + 218 | - 47 | + 1.728 | + 198 | - 41 | + 2.570 | + 220 |
| | Nov. 6 | + 13.770 | + 160 | - 24 | + 13.428 | + 174 | - 26 | + 5.446 | + 206 | - 46 | + 3.691 | + 196 | - 42 | + 4.738 | + 210 |
| Dec. | 16 | + 15.166 | + 117 | - 18 | + 14.972 | + 132 | - 20 | + 7.431 | + 187 | - 44 | + 5.551 | + 178 | - 41 | + 6.771 | + 193 |
| | 26 | + 16.100 | + 68 | - 11 | + 16.060 | + 84 | - 13 | + 9.192 | + 162 | - 39 | + 7.247 | + 159 | - 39 | + 8.604 | + 170 |
| | 6 | + 16.535 | + 18 | - 3 | + 16.653 | + 33 | - 6 | + 10.676 | + 132 | - 34 | + 8.723 | + 134 | - 36 | + 10.175 | + 141 |
| | 16 | + 16.456 | - 34 | + 5 | + 16.727 | - 19 | + 2 | + 11.829 | + 95 | - 26 | + 9.932 | + 105 | - 32 | + 11.433 | + 108 |
| | 26 | + 15.860 | - 84 | + 13 | + 16.277 | - 76 | + 9 | + 12.572 | + 57 | - 21 | + 10.829 | + 74 | - 26 | + 12.334 | + 76 |
| | 36 | + 14.767 | - 133 | + 19 | + 15.314 | - 138 | + 17 | + 12.976 | + 18 | - 13 | + 11.389 | + 42 | - 21 | + 12.848 | + 45 |

CONTINUATION OF TABLE IV.—*Aberration.*

| δ Persei | | | 9 Aurigæ | | | α Aurigæ | | | 18 Camelop. | | | δ Aurigæ | | | 35 Camelop. | | |
|----------|---------|----------------------|------------|------------|----------------------|------------|------------|----------------------|-------------|------------|----------------------|------------|------------|----------------------|-------------|--|----------------------|
| | 1730 | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. |
| Jan. | 0 | + 10.048 | + 58 - 25 | + 6.471 | + 137 - 46 | + 5.138 | + 115 - 42 | + 5.544 | + 179 - 48 | + 3.396 | + 172 - 59 | + 2.809 | + 158 - 54 | | | | |
| | 10 | + 10.476 | + 26 - 18 | + 7.720 | + 113 - 40 | + 6.181 | + 95 - 38 | + 7.223 | + 156 - 44 | + 5.081 | + 160 - 56 | + 4.375 | + 150 - 49 | | | | |
| | 20 | + 10.576 | - 7 - 11 | + 8.727 | + 87 - 34 | + 7.030 | + 74 - 33 | + 8.672 | + 131 - 38 | + 6.604 | + 142 - 51 | + 5.803 | + 134 - 43 | | | | |
| | 30 | + 10.344 | - 39 - 3 | + 9.458 | + 58 - 25 | + 7.658 | + 52 - 27 | + 9.848 | + 104 - 32 | + 7.918 | + 119 - 45 | + 7.047 | + 113 - 36 | | | | |
| | Feb. 9 | + 9.793 | - 70 + 5 | + 9.894 | + 28 - 16 | + 8.046 | + 26 - 20 | + 10.714 | + 70 - 24 | + 8.982 | + 92 - 38 | + 8.068 | + 90 - 27 | | | | |
| Mar. | 19 | + 8.941 | - 98 + 13 | + 10.024 | - 2 - 7 | + 8.184 | + 1 - 13 | + 11.248 | + 36 - 16 | + 9.766 | + 63 - 29 | + 8.837 | + 63 - 18 | | | | |
| | 1 | + 7.821 | - 124 + 20 | + 9.846 | - 33 + 3 | + 8.072 | - 23 - 5 | + 11.436 | + 1 - 8 | + 10.247 | + 33 - 19 | + 9.333 | + 35 - 9 | | | | |
| | 11 | + 6.470 | - 144 + 26 | + 9.372 | - 61 + 13 | + 7.717 | - 47 + 3 | + 11.276 | - 33 + 2 | + 10.417 | 0 - 10 | + 9.543 | + 7 + 2 | | | | |
| | 21 | + 4.934 | - 161 + 31 | + 8.621 | - 88 + 21 | + 7.132 | - 69 + 11 | + 10.780 | - 65 + 11 | + 10.273 | - 30 + 1 | + 9.468 | - 22 + 11 | | | | |
| | 31 | + 3.260 | - 172 + 36 | + 7.618 | - 111 + 29 | + 6.341 | - 88 + 18 | + 9.969 | - 96 + 19 | + 9.827 | - 59 + 11 | + 9.113 | - 49 + 20 | | | | |
| Apr. | 10 | + 1.500 | - 178 + 39 | + 6.399 | - 131 + 37 | + 5.367 | - 105 + 25 | + 8.870 | - 122 + 27 | + 9.097 | - 86 + 20 | + 8.493 | - 74 + 28 | | | | |
| | 20 | - 0.294 | - 178 + 41 | + 5.002 | - 147 + 42 | + 4.244 | - 118 + 31 | + 7.522 | - 145 + 33 | + 8.107 | - 110 + 29 | + 7.631 | - 97 + 36 | | | | |
| | 30 | - 2.069 | - 174 + 42 | + 3.468 | - 158 + 47 | + 3.007 | - 128 + 36 | + 5.965 | - 164 + 39 | + 6.891 | - 131 + 37 | + 6.556 | - 117 + 43 | | | | |
| | May 10 | - 3.779 | - 165 + 43 | + 1.844 | - 165 + 51 | + 1.690 | - 134 + 39 | + 4.247 | - 177 + 44 | + 5.486 | - 148 + 44 | + 5.301 | - 133 + 47 | | | | |
| | 20 | - 5.373 | - 152 + 41 | + 0.176 | - 167 + 52 | + 0.331 | - 136 + 42 | + 2.417 | - 186 + 47 | + 3.933 | - 161 + 49 | + 3.902 | - 145 + 51 | | | | |
| June | 30 | - 6.814 | - 134 + 39 | - 1.492 | - 164 + 53 | - 1.032 | - 135 + 44 | + 0.527 | - 190 + 49 | + 2.274 | - 169 + 54 | + 2.398 | - 153 + 54 | | | | |
| | 9 | - 8.061 | - 114 + 35 | - 3.113 | - 157 + 52 | - 2.363 | - 130 + 44 | - 1.373 | - 188 + 50 | + 0.560 | - 172 + 56 | + 0.834 | - 157 + 55 | | | | |
| | 19 | - 9.084 | - 90 + 31 | - 4.646 | - 147 + 49 | - 3.626 | - 121 + 43 | - 3.232 | - 181 + 49 | - 1.169 | - 171 + 58 | - 0.750 | - 157 + 59 | | | | |
| | 29 | - 9.856 | - 63 + 26 | - 6.050 | - 132 + 46 | - 4.788 | - 110 + 41 | - 4.999 | - 170 + 47 | - 2.862 | - 165 + 57 | - 2.314 | - 153 + 52 | | | | |
| | July 9 | - 10.352 | - 36 + 20 | - 7.287 | - 114 + 41 | - 5.818 | - 95 + 38 | - 6.629 | - 154 + 44 | - 4.477 | - 155 + 55 | - 3.812 | - 145 + 49 | | | | |
| Aug. | 19 | - 10.573 | - 7 + 13 | - 8.325 | - 92 + 35 | - 6.690 | - 78 + 34 | - 8.078 | - 134 + 40 | - 5.970 | - 141 + 52 | - 5.207 | - 133 + 44 | | | | |
| | 29 | - 10.499 | + 22 + 7 | - 9.135 | - 68 + 29 | - 7.378 | - 59 + 29 | - 9.307 | - 110 + 34 | - 7.301 | - 123 + 47 | - 6.462 | - 117 + 38 | | | | |
| | 8 | - 10.133 | + 51 0 | - 9.693 | - 42 + 20 | - 7.864 | - 38 + 24 | - 10.280 | - 83 + 27 | - 8.433 | - 102 + 41 | - 7.540 | - 97 + 31 | | | | |
| | 18 | - 9.484 | + 78 - 7 | - 9.983 | - 15 + 12 | - 8.131 | - 15 + 17 | - 10.971 | - 54 + 20 | - 9.334 | - 77 + 34 | - 8.411 | - 75 + 23 | | | | |
| | 28 | - 8.565 | + 104 - 14 | - 9.994 | + 14 + 3 | - 8.172 | + 8 + 10 | - 11.356 | - 22 + 12 | - 9.976 | - 50 + 25 | - 9.049 | - 51 + 14 | | | | |
| Sept. | 7 | - 7.399 | + 128 - 21 | - 9.722 | + 41 - 6 | - 7.981 | + 31 + 2 | - 11.420 | + 10 + 4 | - 10.338 | - 22 + 16 | - 9.434 | - 25 + 5 | | | | |
| | 17 | - 6.015 | + 148 - 26 | - 9.169 | + 69 - 15 | - 7.560 | + 53 - 5 | - 11.158 | + 42 - 5 | - 10.406 | + 8 + 7 | - 9.550 | + 2 - 4 | | | | |
| | 27 | - 4.449 | + 164 - 32 | - 8.347 | + 95 - 24 | - 6.917 | + 75 - 13 | - 10.571 | + 74 - 13 | - 10.172 | + 38 - 4 | - 9.391 | + 30 - 14 | | | | |
| | Oct. 7 | - 2.743 | + 175 - 37 | - 7.277 | + 118 - 32 | - 6.069 | + 94 - 20 | - 9.671 | + 105 - 21 | - 9.639 | + 68 - 14 | - 8.949 | + 57 - 26 | | | | |
| | 17 | - 0.947 | + 182 - 40 | - 5.985 | + 139 - 38 | - 5.035 | + 111 - 27 | - 8.480 | + 132 - 29 | - 8.817 | + 96 - 23 | - 8.252 | + 83 - 31 | | | | |
| Nov. | 27 | + 0.887 | + 183 - 42 | - 4.506 | + 155 - 44 | - 3.845 | + 125 - 33 | - 7.026 | + 156 - 36 | - 7.727 | + 121 - 32 | - 7.297 | + 107 - 38 | | | | |
| | 6 | + 2.705 | + 178 - 43 | - 2.883 | + 167 - 49 | - 2.532 | + 135 - 38 | - 5.353 | + 176 - 42 | - 6.397 | + 143 - 41 | - 6.116 | + 128 - 45 | | | | |
| | 16 | + 4.449 | + 168 - 43 | - 1.163 | + 174 - 53 | - 1.137 | + 142 - 41 | - 3.508 | + 190 - 47 | - 4.864 | + 161 - 48 | - 4.739 | + 145 - 52 | | | | |
| | 26 | + 6.061 | + 152 - 41 | + 0.599 | + 176 - 55 | + 0.300 | + 144 - 44 | - 1.548 | + 198 - 50 | - 3.176 | + 174 - 53 | - 3.217 | + 158 - 54 | | | | |
| | Dec. 6 | + 7.495 | + 132 - 40 | + 2.348 | + 171 - 54 | + 1.733 | + 142 - 45 | + 0.468 | + 201 - 52 | - 1.382 | + 182 - 57 | - 1.586 | + 156 - 57 | | | | |
| 16 | + 8.691 | + 103 - 34 | + 4.028 | + 162 - 53 | + 3.116 | + 133 - 46 | + 2.474 | + 197 - 52 | + 0.458 | + 183 - 59 | + 0.098 | + 158 - 56 | | | | | |
| | 26 | + 9.564 | + 76 - 28 | + 5.585 | + 147 - 49 | + 4.402 | + 122 - 44 | + 4.405 | + 186 - 50 | + 2.287 | + 179 - 60 | + 1.781 | + 156 - 55 | | | | |
| | 36 | + 10.203 | + 52 - 22 | + 6.966 | + 125 - 44 | + 5.550 | + 105 - 40 | + 6.198 | + 168 - 47 | + 4.045 | + 172 - 58 | + 3.410 | + 145 - 52 | | | | |

TABLE I.—*Præcession + Proper Motion.*

| | λ Cassiopeia | α Cassiopeia | τ Persei | α Persei | γ Persei | δ Persei | η Aurige | α Aurige | $\iota\delta$ Camelop. | δ Aurige | $\varsigma\varsigma$ Camelop. |
|------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|----------------------|-------------------------------|
| 1727 | — 60 ^{''} 45 | — 59 ^{''} 68 | — 46 ^{''} 78 | — 41 ^{''} 46 | — 45 ^{''} 16 | — 37 ^{''} 82 | — 18 ^{''} 58 | — 15 ^{''} 16 | — 12 ^{''} 49 | — 6 ^{''} 46 | — 4 ^{''} 27 |
| 28 | — 40.30 | — 39.79 | — 31.18 | — 27.63 | — 30.10 | — 25.21 | — 12.38 | — 10.10 | — 8.32 | — 4.29 | — 2.84 |
| 29 | — 20.15 | — 19.89 | — 15.59 | — 13.81 | — 15.05 | — 12.60 | — 6.18 | — 5.04 | — 4.15 | — 2.14 | — 1.41 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | + 20.15 | + 19.89 | + 15.59 | + 13.81 | + 15.05 | + 12.60 | + 6.18 | + 5.04 | + 4.15 | + 2.14 | + 1.41 |
| 32 | + 40.30 | + 39.79 | + 31.16 | + 27.61 | + 30.08 | + 25.19 | + 12.36 | + 10.08 | + 8.30 | + 4.27 | + 2.82 |
| 33 | + 60.45 | + 59.68 | + 46.74 | + 41.42 | + 45.12 | + 37.78 | + 18.52 | + 15.10 | + 12.43 | + 6.40 | + 4.21 |
| 34 | + 80.59 | + 79.58 | + 62.32 | + 55.21 | + 60.15 | + 50.36 | + 24.68 | + 20.13 | + 16.55 | + 8.51 | + 5.59 |
| 35 | + 100.73 | + 99.46 | + 77.88 | + 69.00 | + 75.18 | + 62.94 | + 30.83 | + 25.14 | + 20.67 | + 10.62 | + 6.98 |
| 36 | + 120.88 | + 119.36 | + 93.45 | + 82.79 | + 90.19 | + 75.51 | + 36.97 | + 30.15 | + 24.79 | + 12.72 | + 8.35 |
| 37 | + 141.03 | + 139.24 | + 109.00 | + 96.57 | + 105.22 | + 88.08 | + 43.11 | + 35.16 | + 28.89 | + 14.81 | + 9.72 |
| 38 | + 161.17 | + 159.14 | + 124.56 | + 110.35 | + 120.23 | + 100.64 | + 49.25 | + 40.15 | + 32.99 | + 16.91 | + 11.08 |
| 39 | + 181.29 | + 179.02 | + 140.10 | + 124.12 | + 135.24 | + 113.19 | + 55.38 | + 45.15 | + 37.08 | + 18.99 | + 12.44 |
| 40 | + 201.46 | + 198.92 | + 155.66 | + 137.89 | + 150.25 | + 125.75 | + 61.50 | + 50.13 | + 41.16 | + 21.06 | + 13.78 |
| 41 | + 221.60 | + 218.80 | + 171.21 | + 151.65 | + 165.23 | + 138.30 | + 67.61 | + 55.10 | + 45.24 | + 23.13 | + 15.12 |
| 42 | + 241.74 | + 238.69 | + 186.76 | + 165.41 | + 180.23 | + 150.84 | + 73.71 | + 60.08 | + 49.31 | + 25.18 | + 16.46 |
| 43 | + 261.89 | + 258.57 | + 202.29 | + 179.16 | + 195.21 | + 163.38 | + 79.82 | + 65.04 | + 53.37 | + 27.24 | + 17.78 |
| 44 | + 282.03 | + 278.44 | + 217.82 | + 192.81 | + 210.21 | + 175.91 | + 85.91 | + 70.01 | + 57.42 | + 29.29 | + 19.10 |
| 45 | + 302.17 | + 298.34 | + 233.36 | + 206.67 | + 225.18 | + 188.44 | + 92.00 | + 74.96 | + 61.47 | + 31.32 | + 20.42 |
| 46 | + 322.31 | + 318.23 | + 248.88 | + 220.41 | + 240.16 | + 200.97 | + 98.08 | + 79.91 | + 65.51 | + 33.35 | + 21.72 |
| 47 | + 342.45 | + 338.12 | + 264.40 | + 234.14 | + 255.14 | + 213.49 | + 104.15 | + 84.85 | + 69.54 | + 35.38 | + 23.02 |

CONTINUATION OF TABLE I.—*Mean Motion for every 10 Star-days.*

| | λ Cassiopeia | α Cassiopeia | τ Persei | α Persei | γ Persei | δ Persei | η Aurige | α Aurige | $\iota\delta$ Camelop. | δ Aurige | $\varsigma\varsigma$ Camelop. |
|---------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|------------------------|----------------------|-------------------------------|
| Jan. 0 | + 0 ^{''} 00 | + 0 ^{''} 00 | + 0 ^{''} 00 |
| 10 | 0.55 | 0.54 | 0.43 | 0.38 | 0.41 | 0.34 | 0.17 | 0.14 | 0.11 | 0.06 | 0.04 |
| 20 | 1.10 | 1.09 | 0.85 | 0.75 | 0.83 | 0.69 | 0.34 | 0.28 | 0.23 | 0.12 | 0.08 |
| 30 | 1.65 | 1.63 | 1.28 | 1.13 | 1.23 | 1.03 | 0.51 | 0.41 | 0.34 | 0.18 | 0.12 |
| Feb. 9 | 2.20 | 2.17 | 1.70 | 1.51 | 1.64 | 1.38 | 0.68 | 0.55 | 0.45 | 0.23 | 0.15 |
| 19 | 2.75 | 2.72 | 2.13 | 1.89 | 2.05 | 1.72 | 0.84 | 0.69 | 0.57 | 0.29 | 0.19 |
| Mar. 1 | 3.30 | 3.26 | 2.55 | 2.26 | 2.47 | 2.06 | 1.01 | 0.83 | 0.68 | 0.35 | 0.23 |
| 11 | 3.85 | 3.80 | 2.98 | 2.64 | 2.88 | 2.41 | 1.18 | 0.96 | 0.79 | 0.41 | 0.27 |
| 21 | 4.40 | 4.35 | 3.40 | 3.02 | 3.29 | 2.75 | 1.35 | 1.10 | 0.91 | 0.47 | 0.31 |
| 31 | 4.95 | 4.89 | 3.83 | 3.40 | 3.70 | 3.10 | 1.52 | 1.24 | 1.02 | 0.53 | 0.35 |
| Apr. 10 | 5.50 | 5.43 | 4.26 | 3.77 | 4.11 | 3.44 | 1.69 | 1.38 | 1.13 | 0.59 | 0.39 |
| 20 | 6.05 | 5.97 | 4.68 | 4.15 | 4.52 | 3.78 | 1.86 | 1.52 | 1.25 | 0.64 | 0.42 |
| 30 | 6.60 | 6.52 | 5.11 | 4.53 | 4.93 | 4.13 | 2.03 | 1.65 | 1.36 | 0.70 | 0.46 |
| May 10 | 7.15 | 7.06 | 5.53 | 4.90 | 5.34 | 4.47 | 2.19 | 1.79 | 1.47 | 0.76 | 0.50 |
| 20 | 7.70 | 7.61 | 5.96 | 5.28 | 5.75 | 4.82 | 2.36 | 1.93 | 1.59 | 0.82 | 0.54 |
| 30 | 8.25 | 8.15 | 6.38 | 5.66 | 6.16 | 5.16 | 2.53 | 2.07 | 1.70 | 0.88 | 0.58 |
| June 9 | 8.80 | 8.69 | 6.81 | 6.04 | 6.57 | 5.51 | 2.70 | 2.20 | 1.81 | 0.94 | 0.62 |
| 19 | 9.35 | 9.23 | 7.23 | 6.41 | 6.98 | 5.85 | 2.87 | 2.34 | 1.93 | 0.99 | 0.66 |
| 29 | 9.90 | 9.78 | 7.66 | 6.79 | 7.39 | 6.19 | 3.04 | 2.48 | 2.04 | 1.05 | 0.69 |
| July 9 | 10.45 | 10.32 | 8.09 | 7.17 | 7.81 | 6.54 | 3.21 | 2.62 | 2.15 | 1.11 | 0.73 |
| 19 | 11.00 | 10.87 | 8.51 | 7.54 | 8.22 | 6.88 | 3.38 | 2.76 | 2.27 | 1.17 | 0.77 |
| 29 | 11.55 | 11.41 | 8.94 | 7.92 | 8.63 | 7.22 | 3.55 | 2.89 | 2.38 | 1.23 | 0.81 |
| Aug. 8 | 12.10 | 11.95 | 9.36 | 8.30 | 9.04 | 7.57 | 3.71 | 3.03 | 2.50 | 1.29 | 0.85 |
| 18 | 12.65 | 12.49 | 9.79 | 8.68 | 9.45 | 7.91 | 3.88 | 3.17 | 2.61 | 1.35 | 0.89 |
| 28 | 13.20 | 13.04 | 10.21 | 9.05 | 9.86 | 8.25 | 4.05 | 3.31 | 2.72 | 1.40 | 0.93 |
| Sept. 7 | 13.75 | 13.58 | 10.64 | 9.43 | 10.27 | 8.60 | 4.22 | 3.44 | 2.84 | 1.46 | 0.97 |
| 17 | 14.30 | 14.12 | 11.06 | 9.81 | 10.68 | 8.94 | 4.39 | 3.58 | 2.95 | 1.52 | 1.00 |
| 27 | 14.85 | 14.67 | 11.49 | 10.19 | 11.09 | 9.29 | 4.56 | 3.72 | 3.06 | 1.58 | 1.04 |
| Oct. 7 | 15.40 | 15.21 | 11.91 | 10.56 | 11.50 | 9.63 | 4.73 | 3.86 | 3.17 | 1.64 | 1.08 |
| 17 | 15.95 | 15.75 | 12.34 | 10.94 | 11.91 | 9.98 | 4.89 | 3.99 | 3.29 | 1.70 | 1.12 |
| 27 | 16.50 | 16.30 | 12.77 | 11.32 | 12.33 | 10.32 | 5.06 | 4.13 | 3.40 | 1.75 | 1.16 |
| Nov. 6 | 17.05 | 16.84 | 13.19 | 11.70 | 12.74 | 10.67 | 5.23 | 4.27 | 3.52 | 1.81 | 1.20 |
| 16 | 17.60 | 17.38 | 13.62 | 12.07 | 13.15 | 11.01 | 5.40 | 4.41 | 3.63 | 1.87 | 1.24 |
| 26 | 18.15 | 17.92 | 14.04 | 12.45 | 13.56 | 11.35 | 5.57 | 4.54 | 3.74 | 1.93 | 1.27 |
| Dec. 6 | 18.70 | 18.47 | 14.47 | 12.83 | 13.97 | 11.70 | 5.74 | 4.68 | 3.86 | 1.99 | 1.31 |
| 16 | 19.25 | 19.01 | 14.89 | 13.20 | 14.38 | 12.04 | 5.91 | 4.82 | 3.97 | 2.05 | 1.35 |
| 26 | 19.80 | 19.55 | 15.32 | 13.58 | 14.79 | 12.38 | 6.08 | 4.96 | 4.08 | 2.11 | 1.39 |
| 36 | 20.35 | 20.09 | 15.74 | 13.95 | 15.20 | 12.61 | 6.25 | 5.10 | 4.20 | 2.16 | 1.43 |

TABLE I.—*Precession + Proper Motion.*

| | 46 Aurigæ | β Uræs maj. | ψ Uræs maj. | γ Uræs maj. | ϵ Uræs maj. | δ Uræs maj. | η Uræs maj. | β Draconis | ι Herculis | ξ Draconis | γ Draconis | β Cassiopæ |
|------|-----------|-------------------|------------------|--------------------|----------------------|--------------------|------------------|------------------|------------------|----------------|-------------------|------------------|
| 1727 | + 1°32' | + 58°13' | + 57°97' | + 60°02' | + 59°35' | + 57°25' | + 54°98' | + 9°35' | + 7°35' | + 2°68' | + 2°71' | - 59°58' |
| 28 | + 0.89 | + 38.76 | + 38.65 | + 40.01 | + 39.57 | + 38.16 | + 36.65 | + 6.23 | + 4.89 | + 1.78 | + 1.80 | - 39.72 |
| 29 | + 0.45 | + 19.38 | + 19.32 | + 20.01 | + 19.78 | + 19.08 | + 18.33 | + 3.11 | + 2.45 | + 0.89 | + 0.90 | - 19.86 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | - 0.45 | - 19.38 | - 19.32 | - 20.01 | - 19.78 | - 19.08 | - 18.33 | - 3.11 | - 2.45 | - 0.89 | - 0.90 | + 19.86 |
| 32 | - 0.91 | - 38.76 | - 38.65 | - 40.01 | - 39.57 | - 38.16 | - 36.65 | - 6.23 | - 4.89 | - 1.78 | - 1.80 | + 39.72 |
| 33 | - 1.38 | - 58.15 | - 57.99 | - 60.02 | - 59.35 | - 57.23 | - 54.96 | - 9.33 | - 7.33 | - 2.66 | - 2.69 | + 59.58 |
| 34 | - 1.85 | - 77.53 | - 77.31 | - 80.02 | - 79.13 | - 76.31 | - 73.29 | - 12.44 | - 9.76 | - 3.55 | - 3.58 | + 79.44 |
| 35 | - 2.33 | - 96.92 | - 96.65 | - 100.03 | - 98.91 | - 95.38 | - 91.61 | - 15.55 | - 12.20 | - 4.44 | - 4.48 | + 99.30 |
| 36 | - 2.81 | - 116.31 | - 115.98 | - 120.05 | - 118.68 | - 114.46 | - 109.92 | - 18.65 | - 14.63 | - 5.32 | - 5.37 | + 119.15 |
| 37 | - 3.31 | - 135.71 | - 135.31 | - 140.05 | - 138.47 | - 133.63 | - 128.24 | - 21.75 | - 17.07 | - 6.20 | - 6.26 | + 139.02 |
| 38 | - 3.81 | - 155.11 | - 154.65 | - 160.06 | - 158.25 | - 152.60 | - 146.55 | - 24.85 | - 19.50 | - 7.08 | - 7.15 | + 158.87 |
| 39 | - 4.31 | - 174.49 | - 173.98 | - 180.06 | - 178.03 | - 171.67 | - 164.87 | - 27.95 | - 21.92 | - 7.96 | - 8.03 | + 178.73 |
| 40 | - 4.83 | - 193.90 | - 193.32 | - 200.07 | - 197.80 | - 190.74 | - 183.17 | - 31.04 | - 24.35 | - 8.83 | - 8.91 | + 198.59 |
| 41 | - 5.35 | - 213.30 | - 212.67 | - 220.09 | - 217.57 | - 209.81 | - 201.49 | - 34.13 | - 26.77 | - 9.71 | - 9.79 | + 218.45 |
| 42 | - 5.77 | - 232.70 | - 232.00 | - 240.09 | - 237.35 | - 228.87 | - 219.79 | - 37.23 | - 29.18 | - 10.57 | - 10.66 | + 238.31 |
| 43 | - 6.41 | - 252.10 | - 251.35 | - 260.10 | - 257.13 | - 247.94 | - 238.10 | - 40.32 | - 31.60 | - 11.45 | - 11.54 | + 258.17 |
| 44 | - 6.95 | - 271.51 | - 270.68 | - 280.12 | - 276.90 | - 267.00 | - 256.40 | - 43.41 | - 34.02 | - 12.32 | - 12.41 | + 278.03 |
| 45 | - 7.47 | - 290.91 | - 290.03 | - 300.12 | - 296.66 | - 286.06 | - 274.71 | - 46.49 | - 36.43 | - 13.19 | - 13.28 | + 297.88 |
| 46 | - 8.05 | - 310.33 | - 309.37 | - 320.14 | - 316.44 | - 305.12 | - 293.00 | - 49.57 | - 38.84 | - 14.07 | - 14.16 | + 317.74 |
| 47 | - 8.61 | - 329.73 | - 328.72 | - 340.14 | - 336.21 | - 324.18 | - 311.31 | - 52.66 | - 41.25 | - 14.93 | - 15.03 | + 337.60 |

CONTINUATION OF TABLE I.—*Mean Motion for every 10 Star-days.*

| | 46 Aurigæ | β Uræs maj. | ψ Uræs maj. | γ Uræs maj. | ϵ Uræs maj. | δ Uræs maj. | η Uræs maj. | β Draconis | ι Herculis | ξ Draconis | γ Draconis | β Cassiopæ |
|---------|-----------|-------------------|------------------|--------------------|----------------------|--------------------|------------------|------------------|------------------|----------------|-------------------|------------------|
| Jan. 0 | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | - 0°00' | + 0°00' |
| 10 | 0.01 | 0.53 | 0.53 | 0.55 | 0.54 | 0.52 | 0.50 | 0.09 | 0.07 | 0.02 | 0.03 | 0.54 |
| 20 | 0.03 | 1.06 | 1.06 | 1.09 | 1.08 | 1.04 | 1.00 | 0.17 | 0.13 | 0.05 | 0.05 | 1.09 |
| 30 | 0.04 | 1.59 | 1.58 | 1.64 | 1.62 | 1.56 | 1.50 | 0.26 | 0.20 | 0.07 | 0.07 | 1.63 |
| Feb. 9 | 0.05 | 2.12 | 2.11 | 2.19 | 2.16 | 2.08 | 2.00 | 0.34 | 0.27 | 0.10 | 0.10 | 2.17 |
| 19 | 0.06 | 2.65 | 2.64 | 2.73 | 2.70 | 2.61 | 2.50 | 0.43 | 0.33 | 0.12 | 0.12 | 2.71 |
| Mar. 1 | 0.07 | 3.18 | 3.17 | 3.28 | 3.24 | 3.13 | 3.00 | 0.51 | 0.40 | 0.15 | 0.15 | 3.25 |
| 11 | 0.09 | 3.71 | 3.69 | 3.82 | 3.78 | 3.65 | 3.50 | 0.60 | 0.47 | 0.17 | 0.17 | 3.80 |
| 21 | 0.10 | 4.23 | 4.22 | 4.37 | 4.32 | 4.17 | 4.00 | 0.68 | 0.53 | 0.20 | 0.20 | 4.34 |
| 31 | 0.11 | 4.76 | 4.75 | 4.92 | 4.86 | 4.69 | 4.50 | 0.77 | 0.60 | 0.22 | 0.22 | 4.88 |
| Apr. 10 | 0.12 | 5.29 | 5.28 | 5.46 | 5.40 | 5.21 | 5.00 | 0.85 | 0.67 | 0.24 | 0.25 | 5.42 |
| 20 | 0.14 | 5.82 | 5.80 | 6.01 | 5.94 | 5.73 | 5.50 | 0.94 | 0.74 | 0.27 | 0.27 | 5.97 |
| 30 | 0.15 | 6.35 | 6.33 | 6.56 | 6.48 | 6.25 | 6.01 | 1.02 | 0.80 | 0.29 | 0.30 | 6.51 |
| May 10 | 0.16 | 6.88 | 6.86 | 7.10 | 7.02 | 6.77 | 6.51 | 1.11 | 0.87 | 0.32 | 0.32 | 7.05 |
| 20 | 0.17 | 7.41 | 7.39 | 7.65 | 7.56 | 7.29 | 7.01 | 1.19 | 0.94 | 0.34 | 0.34 | 7.59 |
| 30 | 0.18 | 7.94 | 7.91 | 8.19 | 8.10 | 7.81 | 7.51 | 1.28 | 1.00 | 0.37 | 0.37 | 8.13 |
| June 9 | 0.20 | 8.47 | 8.44 | 8.74 | 8.64 | 8.34 | 8.01 | 1.36 | 1.07 | 0.39 | 0.39 | 8.68 |
| 19 | 0.21 | 9.00 | 8.97 | 9.29 | 9.18 | 8.86 | 8.51 | 1.45 | 1.14 | 0.41 | 0.42 | 9.22 |
| 29 | 0.22 | 9.53 | 9.50 | 9.83 | 9.72 | 9.38 | 9.01 | 1.53 | 1.20 | 0.44 | 0.44 | 9.76 |
| July 9 | 0.23 | 10.05 | 10.03 | 10.38 | 10.27 | 9.90 | 9.51 | 1.62 | 1.27 | 0.46 | 0.47 | 10.30 |
| 19 | 0.25 | 10.59 | 10.55 | 10.93 | 10.81 | 10.42 | 10.01 | 1.70 | 1.34 | 0.49 | 0.49 | 10.85 |
| 29 | 0.26 | 11.12 | 11.08 | 11.47 | 11.35 | 10.94 | 10.51 | 1.79 | 1.40 | 0.51 | 0.52 | 11.39 |
| Aug. 8 | 0.27 | 11.65 | 11.61 | 12.02 | 11.89 | 11.46 | 11.01 | 1.87 | 1.47 | 0.54 | 0.54 | 11.93 |
| 18 | 0.28 | 12.17 | 12.14 | 12.57 | 12.43 | 11.98 | 11.51 | 1.96 | 1.54 | 0.56 | 0.57 | 12.47 |
| 28 | 0.29 | 12.70 | 12.66 | 13.11 | 12.96 | 12.50 | 12.01 | 2.04 | 1.60 | 0.58 | 0.59 | 13.01 |
| Sept. 7 | 0.31 | 13.23 | 13.19 | 13.66 | 13.51 | 13.03 | 12.51 | 2.13 | 1.67 | 0.61 | 0.62 | 13.56 |
| 17 | 0.32 | 13.76 | 13.72 | 14.21 | 14.05 | 13.55 | 13.01 | 2.21 | 1.74 | 0.63 | 0.64 | 14.10 |
| 27 | 0.33 | 14.29 | 14.25 | 14.75 | 14.59 | 14.07 | 13.51 | 2.30 | 1.80 | 0.66 | 0.66 | 14.64 |
| Oct. 7 | 0.34 | 14.82 | 14.78 | 15.30 | 15.13 | 14.59 | 14.01 | 2.38 | 1.87 | 0.68 | 0.69 | 15.19 |
| 17 | 0.36 | 15.35 | 15.30 | 15.84 | 15.67 | 15.11 | 14.51 | 2.47 | 1.94 | 0.71 | 0.71 | 15.73 |
| 27 | 0.37 | 15.88 | 15.83 | 16.39 | 16.21 | 15.63 | 15.02 | 2.55 | 2.00 | 0.73 | 0.74 | 16.27 |
| Nov. 6 | 0.38 | 16.41 | 16.36 | 16.94 | 16.75 | 16.15 | 15.52 | 2.64 | 2.07 | 0.75 | 0.76 | 16.81 |
| 16 | 0.39 | 16.94 | 16.89 | 17.48 | 17.29 | 16.67 | 16.02 | 2.72 | 2.14 | 0.78 | 0.79 | 17.35 |
| 26 | 0.40 | 17.46 | 17.41 | 18.03 | 17.82 | 17.19 | 16.51 | 2.81 | 2.20 | 0.80 | 0.81 | 17.89 |
| Dec. 6 | 0.42 | 17.99 | 17.94 | 18.57 | 18.37 | 17.71 | 17.01 | 2.89 | 2.27 | 0.83 | 0.84 | 18.44 |
| 16 | 0.43 | 18.52 | 18.47 | 19.12 | 18.91 | 18.24 | 17.52 | 2.98 | 2.34 | 0.85 | 0.86 | 18.98 |
| 26 | 0.44 | 19.05 | 18.90 | 19.67 | 19.45 | 18.75 | 18.02 | 3.06 | 2.41 | 0.88 | 0.89 | 19.52 |
| 36 | 0.45 | 19.58 | 19.52 | 20.21 | 19.99 | 19.28 | 18.52 | 3.15 | 2.47 | 0.90 | 0.91 | 20.06 |

TABLE II.—*Lunar Nutation.*

| | λ Cassiopeia | α Cassiopeia | τ Persei | α Persei | γ Persei | δ Persei | 9 Aurigae | α Aurigae | 18 Camelop. | δ Aurigae | 35 Camelop. |
|-------------|----------------------|---------------------|---------------|-----------------|-----------------|-----------------|-----------|------------------|-------------|------------------|-------------|
| 1727 Jan. 0 | +0.064 | +0.386 | +5.084 | +5.986 | +5.400 | +6.498 | +8.198 | +8.354 | +8.505 | +8.748 | +8.783 |
| | +0.668 | +0.989 | +5.576 | +6.428 | +5.877 | +6.905 | +8.424 | +8.552 | +8.672 | +8.843 | +8.863 |
| | +1.261 | +1.579 | +6.019 | +6.815 | +6.301 | +7.253 | +8.579 | +8.679 | +8.767 | +8.866 | +8.870 |
| | +1.844 | +2.156 | +6.413 | +7.146 | +6.674 | +7.542 | +8.664 | +8.735 | +8.790 | +8.816 | +8.805 |
| | +2.417 | +2.720 | +6.757 | +7.421 | +6.995 | +7.772 | +8.680 | +8.720 | +8.741 | +8.693 | +8.667 |
| 1728 Jan. 0 | +2.229 | +2.536 | +6.647 | +7.336 | +6.894 | +7.701 | +8.683 | +8.733 | +8.765 | +8.741 | +8.720 |
| | +2.783 | +3.086 | +6.953 | +7.569 | +7.176 | +7.887 | +8.649 | +8.669 | +8.666 | +8.530 | +8.532 |
| | +3.314 | +3.607 | +7.201 | +7.739 | +7.398 | +8.007 | +8.544 | +8.534 | +8.497 | +8.276 | +8.276 |
| | +3.824 | +4.099 | +7.390 | +7.845 | +7.559 | +8.061 | +8.369 | +8.328 | +8.258 | +7.978 | +7.952 |
| | +4.311 | +4.563 | +7.520 | +7.888 | +7.659 | +8.049 | +8.123 | +8.052 | +7.949 | +7.637 | +7.559 |
| 1729 Jan. 0 | +4.155 | +4.413 | +7.480 | +7.883 | +7.634 | +8.062 | +8.213 | +8.154 | +8.061 | +7.772 | +7.699 |
| | +4.614 | +4.852 | +7.571 | +7.881 | +7.692 | +8.005 | +7.922 | +7.832 | +7.706 | +7.349 | +7.261 |
| | +5.031 | +5.248 | +7.598 | +7.815 | +7.686 | +7.883 | +7.567 | +7.447 | +7.290 | +6.868 | +6.767 |
| | +5.408 | +5.603 | +7.561 | +7.684 | +7.617 | +7.695 | +7.148 | +7.000 | +6.813 | +6.329 | +6.216 |
| | +5.743 | +5.915 | +7.460 | +7.489 | +7.484 | +7.442 | +6.666 | +6.491 | +6.275 | +5.733 | +5.609 |
| 1730 Jan. 0 | +5.637 | +5.816 | +7.501 | +7.561 | +7.536 | +7.534 | +6.834 | +6.668 | +6.460 | +5.937 | +5.818 |
| | +5.942 | +6.096 | +7.359 | +7.323 | +7.360 | +7.238 | +6.313 | +6.121 | +5.585 | +5.306 | +5.177 |
| | +6.196 | +6.323 | +7.156 | +7.026 | +7.125 | +6.884 | +5.743 | +5.526 | +5.264 | +4.635 | +4.496 |
| | +6.399 | +6.498 | +6.893 | +6.669 | +6.830 | +6.472 | +5.124 | +4.884 | +4.598 | +3.924 | +3.776 |
| | +6.550 | +6.621 | +6.570 | +6.253 | +6.475 | +6.001 | +4.455 | +4.194 | +3.886 | +3.172 | +3.017 |
| 1731 Jan. 0 | +6.506 | +6.587 | +6.685 | +6.398 | +6.600 | +6.165 | +4.682 | +4.429 | +4.127 | +3.425 | +3.274 |
| | +6.617 | +6.666 | +6.287 | +5.904 | +6.168 | +5.613 | +3.931 | +3.657 | +3.335 | +2.595 | +2.438 |
| | +6.680 | +6.701 | +5.910 | +5.445 | +5.763 | +5.107 | +3.260 | +2.970 | +2.631 | +1.863 | +1.701 |
| | +6.695 | +6.693 | +5.556 | +5.024 | +5.385 | +4.647 | +2.671 | +2.368 | +2.017 | +1.229 | +1.063 |
| | +6.663 | +6.642 | +5.224 | +4.638 | +5.034 | +4.233 | +2.161 | +1.851 | +1.492 | +0.692 | +0.525 |
| 1732 Jan. 0 | +6.669 | +6.649 | +5.243 | +4.660 | +5.055 | +4.256 | +2.188 | +1.754 | +1.518 | +0.719 | +0.552 |
| | +6.566 | +6.511 | +4.615 | +3.951 | +4.395 | +3.487 | +1.263 | +0.895 | +0.570 | -0.244 | -0.412 |
| | +6.412 | +6.325 | +3.984 | +3.232 | +3.736 | +2.735 | +0.384 | +0.053 | -0.325 | -1.146 | -1.313 |
| | +6.207 | +6.091 | +3.352 | +2.541 | +3.079 | +1.999 | -0.450 | -0.771 | -1.167 | -1.987 | -2.152 |
| | +5.952 | +5.808 | +2.717 | +1.841 | +2.424 | +1.279 | -1.237 | -1.576 | -1.957 | -2.767 | -2.929 |
| 1733 Jan. 0 | +6.044 | +5.909 | +2.936 | +2.081 | +2.651 | ..... | -0.966 | -1.312 | -1.686 | -2.500 | -2.664 |
| | +5.750 | +5.588 | +2.267 | +1.350 | +1.962 | ..... | -1.775 | -2.116 | -2.493 | -3.293 | -3.452 |
| | +5.408 | +5.221 | +1.582 | +0.627 | +1.260 | ..... | -2.563 | -2.899 | -3.273 | -4.052 | -4.206 |
| | +5.019 | +4.808 | +0.882 | -0.110 | +0.546 | ..... | -3.331 | -3.660 | -4.027 | -4.779 | -4.926 |
| | +4.582 | +4.348 | +0.165 | -0.855 | -0.181 | ..... | -4.079 | -4.400 | -4.754 | -5.472 | -5.611 |
| 1734 Jan. 0 | +4.732 | +4.506 | +0.404 | -0.608 | +0.061 | ..... | -3.833 | -4.158 | -4.516 | -5.246 | -5.388 |
| | +4.266 | +4.019 | -0.315 | -1.349 | -0.667 | ..... | -4.559 | -4.873 | -5.217 | -5.909 | -6.041 |
| | +3.767 | +3.501 | -1.026 | -2.074 | -1.384 | ..... | -5.241 | -5.541 | -5.868 | -6.516 | -6.638 |
| | +3.235 | +2.952 | -1.730 | -2.783 | -2.091 | ..... | -5.878 | -6.162 | -6.469 | -7.068 | -7.179 |
| | +2.670 | +2.370 | -2.427 | -3.476 | -2.788 | ..... | -6.471 | -6.738 | -7.021 | -7.565 | -7.663 |
| 1735 Jan. 0 | +2.859 | +2.566 | -2.197 | -3.248 | -2.558 | ..... | -6.279 | -6.552 | -6.845 | -7.407 | -7.509 |
| | +2.275 | +1.968 | -2.881 | -3.922 | -3.240 | ..... | -6.836 | -7.089 | -7.356 | -7.859 | -7.949 |
| | +1.675 | +1.359 | -3.535 | -4.556 | -3.888 | ..... | -7.329 | -7.560 | -7.800 | -8.240 | -8.317 |
| | +1.061 | +0.737 | -4.159 | -5.151 | -4.504 | ..... | -7.759 | -7.965 | -8.177 | -8.550 | -8.613 |
| | +0.431 | +0.103 | -4.753 | -5.707 | -5.086 | ..... | -8.125 | -8.305 | -8.486 | -8.789 | -8.836 |
| 1736 Jan. 0 | +0.642 | +0.315 | -4.559 | -5.528 | -4.897 | ..... | -8.011 | -8.199 | -8.392 | -8.719 | -8.769 |
| | +0.008 | -0.321 | -5.127 | -6.051 | -5.450 | ..... | -8.329 | -8.491 | -8.651 | -8.905 | -8.940 |
| | -0.621 | -0.949 | -5.644 | -6.517 | -5.951 | ..... | -8.573 | -8.706 | -8.833 | -9.013 | -9.033 |
| | -1.244 | -1.568 | -6.113 | -6.927 | -6.400 | ..... | -8.742 | -8.846 | -8.938 | -9.043 | -9.047 |
| | -1.861 | -2.180 | -6.531 | -7.281 | -6.798 | ..... | -8.837 | -8.909 | -8.966 | -8.994 | -8.982 |
| 1737 Jan. 0 | -1.658 | -1.979 | -6.398 | -7.171 | -6.673 | ..... | -8.815 | -8.897 | -8.966 | -9.019 | -9.014 |
| | -2.264 | -2.578 | -6.778 | -7.480 | -7.030 | ..... | -8.856 | -8.907 | -8.940 | -8.916 | -8.894 |
| | -2.845 | -3.148 | -7.096 | -7.722 | -7.323 | ..... | -8.821 | -8.841 | -8.838 | -8.737 | -8.700 |
| | -3.401 | -3.691 | -7.353 | -7.897 | -7.552 | ..... | -8.710 | -8.698 | -8.660 | -8.483 | -8.431 |
| | -3.932 | -4.205 | -7.547 | -8.005 | -7.717 | ..... | -8.522 | -8.479 | -8.405 | -8.154 | -8.087 |

TABLE II.—*Lunar Nutation.*

| | 46 Aurige | δ Ursae maj. | ψ Ursae maj. | γ Ursae maj. | ϵ Ursae maj. | ζ Ursae maj. | η Ursae maj. | β Draconis | ϵ Herculis | ξ Draconis | γ Draconis | δ Cassiopeiae |
|-------------|-----------|---------------------|-------------------|---------------------|-----------------------|--------------------|-------------------|------------------|---------------------|----------------|-------------------|----------------------|
| 1727 Jan. 0 | +8.860 | +3.399 | +3.073 | +1.385 | -1.030 | -2.207 | -3.088 | -8.652 | -8.711 | -8.812 | -8.818 | -0.789 |
| | +8.885 | +2.840 | +2.505 | +0.789 | -1.629 | -2.790 | -3.652 | -8.781 | -8.820 | -8.876 | -8.879 | -0.187 |
| | +8.838 | +2.262 | +1.921 | +0.190 | -2.210 | -3.346 | -4.182 | -8.837 | -8.857 | -8.868 | -8.867 | +0.411 |
| | +8.718 | +1.665 | +1.322 | -0.411 | -2.773 | -3.875 | -4.678 | -8.820 | -8.821 | -8.787 | -8.782 | +1.007 |
| | +8.526 | +1.049 | +0.706 | -1.013 | -3.318 | -4.377 | -5.139 | -8.731 | -8.712 | -8.634 | -8.625 | +1.599 |
| 1728 Jan. 0 | +8.597 | +1.254 | +0.911 | -0.814 | -3.140 | -4.213 | -4.988 | -8.768 | -8.756 | -8.693 | -8.685 | +1.403 |
| | +8.355 | +0.631 | +0.290 | -1.411 | -3.667 | -4.691 | -5.423 | -8.629 | -8.598 | -8.490 | -8.491 | +1.987 |
| | +8.047 | +0.008 | -0.329 | -1.993 | -4.160 | -5.127 | -5.810 | -8.421 | -8.370 | -8.219 | -8.204 | +2.551 |
| | +7.673 | -0.617 | -0.947 | -2.560 | -4.621 | -5.522 | -6.150 | -8.143 | -8.073 | -7.880 | -7.824 | +3.095 |
| | +7.232 | -1.243 | -1.563 | -3.111 | -5.048 | -5.875 | -6.441 | -7.796 | -7.707 | -7.473 | -7.351 | +3.619 |
| 1729 Jan. 0 | +7.387 | -1.035 | -1.358 | -2.930 | -4.910 | -5.763 | -6.350 | -7.921 | -7.838 | -7.618 | -7.597 | +3.448 |
| | +6.903 | -1.656 | -1.967 | -3.466 | -5.310 | -6.084 | -6.606 | -7.529 | -7.427 | -7.168 | -7.143 | +3.953 |
| | +6.366 | -2.260 | -2.556 | -3.969 | -5.664 | -6.354 | -6.807 | -7.077 | -6.958 | -6.661 | -6.634 | +4.422 |
| | +5.775 | -2.846 | -3.125 | -4.441 | -5.972 | -6.571 | -6.952 | -6.566 | -6.431 | -6.099 | -6.069 | +4.856 |
| | +5.130 | -3.414 | -3.674 | -4.881 | -6.233 | -6.736 | -7.041 | -5.995 | -5.845 | -5.480 | -5.448 | +5.255 |
| 1730 Jan. 0 | +5.350 | -3.227 | -3.494 | -4.738 | -6.152 | -6.688 | -7.018 | -6.193 | -6.047 | -5.694 | -5.661 | +5.126 |
| | +4.676 | -3.778 | -4.024 | -5.152 | -6.380 | -6.816 | -7.068 | -5.586 | -5.428 | -5.043 | -5.008 | +5.497 |
| | +3.966 | -4.295 | -4.518 | -5.521 | -6.553 | -6.887 | -7.059 | -4.937 | -4.766 | -4.354 | -4.317 | +5.819 |
| | +3.221 | -4.777 | -4.976 | -5.845 | -6.672 | -6.901 | -6.991 | -4.245 | -4.063 | -3.626 | -3.588 | +6.094 |
| | +2.440 | -5.224 | -5.397 | -6.124 | -6.737 | -6.857 | -6.864 | -3.511 | -3.317 | -2.860 | -2.821 | +6.320 |
| 1731 Jan. 0 | ..... | -5.081 | ..... | -6.037 | -6.722 | -6.878 | -6.914 | -3.762 | ..... | ..... | -3.081 | +6.251 |
|  | ..... | -5.518 | ..... | -6.287 | -6.739 | -6.777 | -6.723 | -2.948 | ..... | ..... | -2.237 | +6.444 |
|  | ..... | -5.870 | ..... | -6.472 | -6.719 | -6.656 | -6.525 | -2.928 | ..... | ..... | -1.496 | +6.579 |
|  | ..... | -6.136 | ..... | -6.593 | -6.664 | -6.515 | -6.319 | -1.601 | ..... | ..... | -0.855 | +6.656 |
|  | ..... | -6.317 | ..... | -6.649 | -6.573 | -6.354 | -6.106 | -1.069 | ..... | ..... | -0.316 | +6.676 |
| 1732 Jan. 0 | ..... | -6.312 | ..... | -6.650 | -6.582 | -6.366 | -6.120 | -1.097 | ..... | ..... | -0.344 | +6.680 |
|  | ..... | -6.591 | ..... | -6.706 | -6.376 | -6.035 | -5.696 | -0.139 | ..... | ..... | +0.621 | +6.670 |
|  | ..... | -6.796 | ..... | -6.700 | -6.126 | -5.671 | -5.249 | +0.761 | ..... | ..... | +1.522 | +6.602 |
|  | ..... | -6.925 | ..... | -6.631 | -5.833 | -5.274 | -4.777 | +1.604 | ..... | ..... | +2.358 | +6.477 |
|  | ..... | -6.981 | ..... | -6.500 | -5.497 | -4.846 | -4.282 | +2.389 | ..... | ..... | +3.129 | +6.295 |
| 1733 Jan. 0 | ..... | -6.967 | ..... | -6.549 | -5.617 | -4.997 | -4.456 | +2.119 | ..... | ..... | +2.864 | +6.361 |
|  | ..... | -6.989 | ..... | -6.383 | -5.243 | -4.530 | -3.923 | +2.919 | ..... | ..... | +3.647 | +6.141 |
|  | ..... | -6.951 | ..... | -6.162 | -4.826 | -4.026 | -3.359 | +3.690 | ..... | ..... | +4.394 | +5.869 |
|  | ..... | -6.853 | ..... | -5.887 | -4.366 | -3.487 | -2.765 | +4.431 | ..... | ..... | +5.104 | +5.546 |
|  | ..... | -6.696 | ..... | -5.558 | -3.864 | -2.911 | -2.140 | +5.142 | ..... | ..... | +5.778 | +5.172 |
| 1734 Jan. 0 | ..... | -6.755 | ..... | -5.673 | -4.035 | -3.107 | -2.351 | +4.908 | ..... | ..... | +5.557 | +5.302 |
|  | ..... | -6.557 | ..... | -5.311 | -3.509 | -2.512 | -1.712 | +5.591 | ..... | ..... | +6.198 | +4.896 |
|  | ..... | -6.304 | ..... | -4.905 | -2.955 | -1.900 | -1.062 | +6.220 | ..... | ..... | +6.782 | +4.450 |
|  | ..... | -5.995 | ..... | -4.455 | -2.375 | -1.270 | -0.401 | +6.797 | ..... | ..... | +7.308 | +3.964 |
|  | ..... | -5.630 | ..... | -3.962 | -1.767 | -0.622 | +0.270 | +7.320 | ..... | ..... | +7.777 | +3.439 |
| 1735 Jan. 0 | ..... | -5.756 | ..... | -4.130 | -1.971 | -0.840 | +0.046 | +7.151 | ..... | ..... | +7.628 | +3.617 |
|  | ..... | -5.358 | ..... | -3.612 | -1.352 | -0.186 | +0.717 | +7.633 | ..... | ..... | +8.051 | +3.070 |
|  | ..... | -4.916 | ..... | -3.067 | -0.725 | +0.464 | +1.376 | +8.045 | ..... | ..... | +8.402 | +2.500 |
|  | ..... | -4.431 | ..... | -2.494 | -0.091 | +1.111 | +2.025 | +8.388 | ..... | ..... | +8.680 | +1.908 |
|  | ..... | -3.901 | ..... | -1.894 | +0.550 | +1.754 | +2.662 | +8.661 | ..... | ..... | +8.885 | +1.294 |
| 1736 Jan. 0 | ..... | -4.081 | ..... | -2.096 | +0.336 | +1.540 | +2.452 | +8.577 | ..... | ..... | +8.825 | +1.500 |
|  | ..... | -3.529 | ..... | -1.484 | +0.975 | +2.174 | +3.074 | +8.799 | ..... | ..... | +8.978 | +0.877 |
|  | ..... | -2.950 | ..... | -0.864 | +1.599 | +2.784 | +3.665 | +8.943 | ..... | ..... | +9.051 | +0.252 |
|  | ..... | -2.346 | ..... | -0.236 | +2.210 | +3.370 | +4.224 | +9.008 | ..... | ..... | +9.046 | -0.376 |
|  | ..... | -1.715 | ..... | +0.399 | +2.806 | +3.931 | +4.751 | +8.996 | ..... | ..... | +8.962 | -1.005 |
| 1737 Jan. 0 | ..... | -1.926 | ..... | +0.188 | +2.610 | +3.747 | +4.580 | +9.010 | ..... | ..... | +9.000 | -0.797 |
|  | ..... | -1.285 | ..... | +0.821 | +3.190 | +4.285 | +5.079 | +8.944 | ..... | ..... | +8.862 | -1.421 |
|  | ..... | -0.640 | ..... | +1.440 | +3.737 | +4.781 | +5.529 | +8.801 | ..... | ..... | +8.649 | -2.026 |
|  | ..... | +0.010 | ..... | +2.046 | +4.251 | +5.235 | +5.931 | +8.584 | ..... | ..... | +8.361 | -2.614 |
|  | ..... | +0.664 | ..... | +2.639 | +4.732 | +5.647 | +6.284 | +8.290 | ..... | ..... | +7.999 | -3.183 |

*C

CONTINUATION OF TABLE II.—*Lunar Nutation.*

| | λ Cassiopeia | α Cassiopeia | τ Persei | α Persei | γ Persei | δ Persei | 9 Aurigae | α Aurigae | 18 Camelop. | δ Camelop. | 35 Camelop. | |
|-------------|----------------------|---------------------|---------------|-----------------|-----------------|-----------------|-----------|------------------|-------------|-------------------|-------------|--------|
| 1738 Jan. 0 | —3°759 | —4°039 | —7°490 | —7°978 | —7°670 | ..... | —8°594 | —8°561 | —8°499 | —8°272 | —8°210 | |
| | Apr. 10 | —4.266 | —4.528 | —7.639 | —8.037 | —7.789 | | —8.355 | —8.291 | —8.193 | —7.894 | —7.816 |
| | Jul. 19 | —4.731 | —4.973 | —7.721 | —8.027 | —7.840 | | —8.046 | —7.952 | —7.820 | —7.451 | —7.360 |
| | Oct. 27 | —5.154 | —5.375 | —7.736 | —7.947 | —7.822 | | —7.669 | —7.545 | —7.380 | —6.945 | —6.841 |
| | Dec. 66 | —5.534 | —5.732 | —7.683 | —7.798 | —7.736 | | —7.222 | —7.070 | —6.873 | —6.374 | —6.260 |
| 1739 Jan. 0 | —5.413 | —5.618 | —7.709 | —7.856 | —7.773 | ..... | —7.378 | —7.235 | —7.050 | —6.571 | —6.460 | |
| | Apr. 10 | —5.761 | —5.991 | —7.611 | —7.660 | —7.641 | | —6.889 | —6.717 | —6.501 | —5.964 | —5.842 |
| | Jul. 19 | —6.055 | —6.209 | —7.448 | —7.401 | —7.446 | | —6.346 | —6.149 | —5.904 | —5.312 | —5.180 |
| | Oct. 27 | —6.297 | —6.423 | —7.221 | —7.079 | —7.187 | | —5.750 | —5.528 | —5.258 | —4.617 | —4.476 |
| | Dec. 66 | —6.485 | —6.583 | —6.931 | —6.694 | —6.865 | | —5.100 | —4.857 | —4.563 | —3.877 | —3.728 |
| 1740 Jan. 0 | ..... | —6.537 | —7.035 | —6.830 | —6.978 | ..... | —5.322 | —5.086 | —4.799 | —4.127 | —3.980 | |
| | Apr. 10 | | —6.663 | —6.734 | —6.440 | —6.646 | | —4.686 | —4.430 | —4.123 | —3.411 | —3.258 |
| | Jul. 19 | | —6.720 | —6.321 | —5.932 | —6.201 | | —3.932 | —3.656 | —3.329 | —2.583 | —2.424 |
| | Oct. 27 | | —6.711 | —5.798 | —5.308 | —5.642 | | —3.057 | —2.764 | —2.419 | —1.643 | —1.480 |
| | Dec. 66 | | —6.633 | —5.163 | —4.566 | —4.970 | | —2.065 | —1.753 | —1.391 | —0.590 | —0.424 |
| 1741 Jan. 0 | ..... | —6.628 | ..... | —4.581 | ..... | ..... | ..... | —1.777 | ..... | —0.615 | —0.449 | |
| | Apr. 10 | ..... | —6.582 | ..... | —4.263 | ..... | ..... | —1.352 | ..... | —0.175 | —0.007 | |
| | Jul. 19 | ..... | —6.464 | ..... | —3.801 | ..... | ..... | —0.772 | ..... | +0.414 | +0.582 | |
| | Oct. 27 | ..... | —6.275 | ..... | —3.197 | ..... | ..... | —0.039 | ..... | +1.152 | +1.319 | |
| | Dec. 66 | ..... | —6.013 | ..... | —2.449 | ..... | ..... | +0.848 | ..... | +2.040 | +2.203 | |
| 1742 Jan. 0 | ..... | —6.103 | ..... | —2.682 | ..... | ..... | ..... | +0.578 | ..... | +1.772 | +1.936 | |
| | Apr. 10 | ..... | —5.817 | ..... | —1.977 | ..... | ..... | +1.385 | ..... | +2.569 | +2.731 | |
| | Jul. 19 | ..... | —5.486 | ..... | —1.264 | ..... | ..... | +2.171 | ..... | +3.337 | +3.494 | |
| | Oct. 27 | ..... | —5.110 | ..... | —0.542 | ..... | ..... | +2.938 | ..... | +4.075 | +4.226 | |
| | Dec. 66 | ..... | —4.688 | ..... | +0.188 | ..... | ..... | +3.684 | ..... | +4.783 | +4.926 | |
| 1743 Jan. 0 | ..... | —4.833 | ..... | —0.054 | ..... | ..... | ..... | +3.438 | ..... | +4.551 | +4.697 | |
| | Apr. 10 | ..... | —4.386 | ..... | +0.674 | ..... | ..... | +4.164 | ..... | +5.231 | +5.369 | |
| | Jul. 19 | ..... | —3.908 | ..... | +1.389 | ..... | ..... | +4.848 | ..... | +5.861 | +5.990 | |
| | Oct. 27 | ..... | —3.399 | ..... | +2.091 | ..... | ..... | +5.489 | ..... | +6.442 | +6.560 | |
| | Dec. 66 | ..... | —2.858 | ..... | +2.781 | ..... | ..... | +6.088 | ..... | +6.973 | +7.080 | |
| 1744 Jan. 0 | ..... | —3.041 | ..... | +2.553 | ..... | ..... | ..... | +5.895 | ..... | +6.802 | +6.914 | |
| | Apr. 10 | ..... | —2.485 | ..... | +3.226 | ..... | ..... | +6.461 | ..... | +7.294 | +7.393 | |
| | Jul. 19 | ..... | —1.914 | ..... | +3.867 | ..... | ..... | +6.968 | ..... | +7.722 | +7.808 | |
| | Oct. 27 | ..... | —1.328 | ..... | +4.475 | ..... | ..... | +7.418 | ..... | +8.085 | +8.158 | |
| | Dec. 66 | ..... | —0.728 | ..... | +5.050 | ..... | ..... | +7.809 | ..... | +8.384 | +8.444 | |
| 1745 Jan. 0 | ..... | —0.929 | ..... | +4.863 | ..... | ..... | ..... | +7.686 | ..... | +8.292 | +8.357 | |
| | Apr. 10 | ..... | —0.325 | ..... | +5.409 | ..... | ..... | +8.034 | ..... | +8.545 | +8.595 | |
| | Jul. 19 | ..... | +0.277 | ..... | +5.907 | ..... | ..... | +8.313 | ..... | +8.725 | +8.761 | |
| | Oct. 27 | ..... | +0.876 | ..... | +6.356 | ..... | ..... | +8.524 | ..... | +8.833 | +8.855 | |
| | Dec. 66 | ..... | +1.473 | ..... | +6.757 | ..... | ..... | +8.666 | ..... | +8.869 | +8.876 | |
| 1746 Jan. 0 | ..... | +1.276 | ..... | +6.630 | ..... | ..... | ..... | +8.627 | ..... | +8.865 | +8.877 | |
| | Apr. 10 | ..... | +1.865 | ..... | +6.993 | ..... | ..... | +8.721 | ..... | +8.853 | +8.849 | |
| | Jul. 19 | ..... | +2.435 | ..... | +7.296 | ..... | ..... | +8.743 | ..... | +8.768 | +8.749 | |
| | Oct. 27 | ..... | +2.985 | ..... | +7.539 | ..... | ..... | +8.693 | ..... | +8.611 | +8.577 | |
| | Dec. 66 | ..... | +3.515 | ..... | +7.723 | ..... | ..... | +8.571 | ..... | +8.381 | +8.333 | |
| 1747 Jan. 0 | ..... | +3.342 | ..... | +7.670 | ..... | ..... | ..... | +8.621 | ..... | +8.466 | +8.423 | |
| | Apr. 10 | ..... | +3.854 | ..... | +7.810 | ..... | ..... | +8.451 | ..... | +8.189 | +8.132 | |
| | Jul. 19 | ..... | +4.331 | ..... | +7.886 | ..... | ..... | +8.213 | ..... | +7.846 | +7.776 | |
| | Oct. 27 | ..... | +4.773 | ..... | +7.897 | ..... | ..... | +7.907 | ..... | +7.439 | +7.355 | |
| | Dec. 66 | ..... | +5.181 | ..... | +7.844 | ..... | ..... | +7.533 | ..... | +6.966 | +6.870 | |

CONTINUATION OF TABLE II.—*Lunar Nutation.*

| | 46 Aurige | β Ursæ maj. | ψ Ursæ maj. | γ Ursæ maj. | ϵ Ursæ maj. | ζ Ursæ maj. | η Ursæ maj. | δ Draconis | ι Herculis | ξ Draconis | γ Draconis | β Cassiopeæ |
|-------------|-----------|-------------------|------------------|--------------------|----------------------|-------------------|------------------|-------------------|------------------|----------------|-------------------|-------------------|
| 1738 Jan. 0 | ..... | +0.448 | ..... | +2.445 | +4.577 | +5.516 | +6.172 | +8.397 | ..... | ..... | +8.129 | -2.996 |
| | Apr. 10 | +1.099 | ..... | +3.092 | +5.030 | +5.894 | +6.488 | +8.053 | ..... | ..... | +7.720 | -3.546 |
| | Jul. 19 | +1.733 | ..... | +3.567 | +5.435 | +6.217 | +6.744 | +7.644 | ..... | ..... | +7.248 | -4.060 |
| | Oct. 27 | +2.351 | ..... | +4.080 | +5.791 | +6.485 | +6.942 | +7.169 | ..... | ..... | +6.715 | -4.537 |
| | Dec. 66 | +2.952 | ..... | +4.561 | +6.099 | +6.699 | +7.080 | +6.628 | ..... | ..... | +6.119 | -4.978 |
| 1739 Jan. 0 | ..... | +2.755 | ..... | +4.405 | +6.002 | +6.634 | +7.041 | +6.816 | ..... | ..... | +6.324 | -4.836 |
| | Apr. 10 | +3.339 | ..... | +4.859 | +6.274 | +6.809 | +7.137 | +6.236 | ..... | ..... | +5.693 | -5.248 |
| | Jul. 19 | +3.888 | ..... | +5.266 | +6.490 | +6.923 | +7.171 | +5.610 | ..... | ..... | +5.020 | -5.610 |
| | Oct. 27 | +4.402 | ..... | +5.626 | +6.649 | +6.977 | +7.144 | +4.937 | ..... | ..... | +4.305 | -5.923 |
| | Dec. 66 | +4.881 | ..... | +5.940 | +6.752 | +6.970 | +7.054 | +4.217 | ..... | ..... | +3.549 | -6.185 |
| 1740 Jan. 0 | ..... | +4.726 | ..... | +5.841 | +6.724 | +6.979 | +7.091 | +4.464 | ..... | ..... | +3.806 | -6.103 |
| | Apr. 10 | +5.161 | ..... | +6.116 | +6.795 | +6.947 | +6.979 | +3.765 | ..... | ..... | +3.076 | -6.329 |
| | Jul. 19 | +5.577 | ..... | +6.344 | +6.791 | +6.828 | +6.771 | +2.952 | ..... | ..... | +2.236 | -6.500 |
| | Oct. 27 | +5.973 | ..... | +6.525 | +6.712 | +6.621 | +6.468 | +2.024 | ..... | ..... | +1.287 | -6.618 |
| | Dec. 66 | +6.350 | ..... | +6.660 | +6.557 | +6.326 | +6.069 | +0.982 | ..... | ..... | +0.229 | -6.681 |
| 1741 Jan. 0 | ..... | +6.334 | ..... | +6.650 | +6.556 | +6.328 | +6.074 | +1.009 | ..... | ..... | +0.256 | -6.672 |
| | Apr. 10 | +6.479 | ..... | +6.692 | +6.478 | +6.192 | +5.894 | +0.572 | ..... | ..... | -0.186 | -6.684 |
| | Jul. 19 | +6.616 | ..... | +6.691 | +6.318 | +5.958 | +5.605 | -0.016 | ..... | ..... | -0.775 | -6.644 |
| | Oct. 27 | +6.746 | ..... | +6.647 | +6.077 | +5.626 | +5.206 | -0.755 | ..... | ..... | -1.518 | -6.551 |
| | Dec. 66 | +6.868 | ..... | +6.561 | +5.755 | +5.195 | +4.697 | -1.644 | ..... | ..... | -2.391 | -6.405 |
| 1742 Jan. 0 | ..... | +6.841 | ..... | +6.598 | +5.864 | +5.335 | +4.861 | -1.374 | ..... | ..... | -2.125 | -6.460 |
| | Apr. 10 | +6.901 | ..... | +6.468 | +5.523 | +4.899 | +4.357 | -2.177 | ..... | ..... | -2.914 | -6.276 |
| | Jul. 19 | +6.902 | ..... | +6.285 | +5.141 | +4.428 | +3.892 | -2.954 | ..... | ..... | -3.671 | -6.042 |
| | Oct. 27 | +6.847 | ..... | +6.051 | +4.717 | +3.922 | +3.258 | -3.704 | ..... | ..... | -4.395 | -5.758 |
| | Dec. 66 | +6.773 | ..... | +5.764 | +4.252 | +3.380 | +2.663 | -4.427 | ..... | ..... | -5.087 | -5.425 |
| 1743 Jan. 0 | ..... | +6.777 | ..... | +5.865 | +4.411 | +3.564 | +2.864 | -4.189 | ..... | ..... | -4.860 | -5.542 |
| | Apr. 10 | +6.626 | ..... | +5.547 | +3.922 | +3.003 | +2.255 | -4.886 | ..... | ..... | -5.523 | -5.178 |
| | Jul. 19 | +6.422 | ..... | +5.187 | +3.406 | +2.424 | +1.634 | -5.537 | ..... | ..... | -6.133 | -4.776 |
| | Oct. 27 | +6.166 | ..... | +4.785 | +2.863 | +1.826 | +1.001 | -6.141 | ..... | ..... | -6.692 | -4.336 |
| | Dec. 66 | +5.857 | ..... | +4.341 | +2.293 | +1.210 | +0.355 | -6.698 | ..... | ..... | -7.198 | -3.858 |
| 1744 Jan. 0 | ..... | +5.965 | ..... | +4.492 | +2.486 | +1.417 | +0.571 | -6.517 | ..... | ..... | -7.035 | -4.020 |
| | Apr. 10 | +5.624 | ..... | +4.024 | +1.904 | +0.794 | -0.076 | -7.036 | ..... | ..... | -7.501 | -3.521 |
| | Jul. 19 | +5.240 | ..... | +3.528 | +1.312 | +0.170 | -0.716 | -7.492 | ..... | ..... | -7.901 | -2.997 |
| | Oct. 27 | +4.814 | ..... | +3.003 | +0.710 | -0.454 | -1.349 | -7.886 | ..... | ..... | -8.236 | -2.450 |
| | Dec. 66 | +4.346 | ..... | +2.451 | +0.099 | -1.078 | -1.975 | -8.217 | ..... | ..... | -8.505 | -1.878 |
| 1745 Jan. 0 | ..... | +4.506 | ..... | +2.637 | +0.301 | -0.871 | -1.768 | -8.113 | ..... | ..... | -8.423 | -2.071 |
| | Apr. 10 | +4.013 | ..... | +2.071 | -0.311 | -1.490 | -2.383 | -8.399 | ..... | ..... | -8.645 | -1.489 |
| | Jul. 19 | +3.491 | ..... | +1.492 | -0.916 | -2.090 | -2.974 | -8.614 | ..... | ..... | -8.794 | -0.900 |
| | Oct. 27 | +2.942 | ..... | +0.902 | -1.513 | -2.674 | -3.540 | -8.758 | ..... | ..... | -8.872 | -0.304 |
| | Dec. 66 | +2.364 | ..... | +0.299 | -2.102 | -3.239 | -4.081 | -8.831 | ..... | ..... | -8.877 | +0.299 |
| 1746 Jan. 0 | ..... | +2.558 | ..... | +0.500 | -1.904 | -3.052 | -3.903 | -8.815 | ..... | ..... | -8.883 | +0.099 |
| | Apr. 10 | +1.966 | ..... | -0.105 | -2.484 | -3.601 | -4.423 | -8.839 | ..... | ..... | -8.839 | +0.701 |
| | Jul. 19 | +1.362 | ..... | -0.704 | -3.038 | -4.116 | -4.902 | -8.791 | ..... | ..... | -8.722 | +1.293 |
| | Oct. 27 | +0.747 | ..... | -1.298 | -3.567 | -4.598 | -5.341 | -8.670 | ..... | ..... | -8.534 | +1.875 |
| | Dec. 66 | +0.119 | ..... | -1.887 | -4.071 | -5.046 | -5.740 | -8.476 | ..... | ..... | -8.273 | +2.447 |
| 1747 Jan. 0 | ..... | +0.329 | ..... | -1.692 | -3.907 | -4.901 | -5.612 | -8.549 | ..... | ..... | -8.368 | +2.258 |
| | Apr. 10 | -0.300 | ..... | -2.272 | -4.390 | -5.322 | -5.982 | -8.309 | ..... | ..... | -8.061 | +2.816 |
| | Jul. 19 | -0.923 | ..... | -2.829 | -4.833 | -5.697 | -6.296 | -8.002 | ..... | ..... | -7.691 | +3.350 |
| | Oct. 27 | -1.540 | ..... | -3.364 | -5.237 | -6.026 | -6.564 | -7.628 | ..... | ..... | -7.256 | +3.860 |
| | Dec. 66 | -2.150 | ..... | -3.877 | -5.602 | -6.308 | -6.777 | -7.187 | ..... | ..... | -6.756 | +4.346 |

TABLE III.—*Solar Nutation.*

| | λ Cassiopeia | α Cassiopeia | τ Persel | α Persel | γ Persel | δ Persel | η Aurigae | α Aurigae | τ Camelop. | δ Camelop. | η Camelop. |
|-----------|----------------------|---------------------|---------------|-----------------|-----------------|-----------------|----------------|------------------|-----------------|-------------------|-----------------|
| Jan. | 0 +0.142 | +0.122 | -0.199 | -0.267 | -0.223 | -0.308 | -0.458 | -0.474 | -0.492 | -0.524 | -0.529 |
| | 10 +0.311 | +0.294 | -0.008 | -0.080 | -0.033 | -0.125 | -0.308 | -0.331 | -0.356 | -0.405 | -0.414 |
| | 20 +0.442 | +0.431 | +0.184 | +0.116 | +0.162 | +0.072 | -0.121 | -0.147 | -0.175 | -0.236 | -0.249 |
| | 30 +0.517 | +0.512 | +0.352 | +0.298 | +0.335 | +0.261 | +0.082 | +0.056 | +0.027 | -0.038 | -0.051 |
| Feb. | 9 +0.529 | +0.532 | +0.478 | +0.443 | +0.467 | +0.417 | +0.273 | +0.251 | +0.224 | +0.164 | +0.152 |
| | 19 +0.476 | +0.485 | +0.543 | +0.532 | +0.540 | +0.520 | +0.431 | +0.414 | +0.393 | +0.345 | +0.335 |
| Mar. | 1 +0.365 | +0.380 | +0.543 | +0.558 | +0.548 | +0.561 | +0.536 | +0.527 | +0.515 | +0.484 | +0.477 |
| | 11 +0.211 | +0.231 | +0.478 | +0.515 | +0.491 | +0.535 | +0.575 | +0.575 | +0.573 | +0.564 | +0.561 |
| | 21 +0.033 | +0.054 | +0.356 | +0.412 | +0.375 | +0.445 | +0.547 | +0.555 | +0.564 | +0.576 | +0.577 |
| | 31 -0.148 | -0.128 | +0.192 | +0.261 | +0.216 | +0.302 | +0.454 | +0.471 | +0.488 | +0.521 | +0.527 |
| Apr. | 10 -0.311 | -0.294 | +0.008 | +0.082 | +0.033 | +0.126 | +0.309 | +0.331 | +0.356 | +0.406 | +0.416 |
| | 20 -0.437 | -0.425 | -0.176 | -0.107 | -0.152 | -0.064 | +0.129 | +0.155 | +0.183 | +0.245 | +0.257 |
| | 30 -0.513 | -0.508 | -0.339 | -0.283 | -0.320 | -0.245 | -0.064 | -0.038 | -0.008 | +0.056 | +0.069 |
| May | 10 -0.531 | -0.533 | -0.464 | -0.426 | -0.452 | -0.398 | -0.249 | -0.226 | -0.199 | -0.138 | -0.125 |
| | 20 -0.490 | -0.498 | -0.536 | -0.521 | -0.532 | -0.507 | -0.401 | -0.388 | -0.366 | -0.316 | -0.304 |
| 30 -0.395 | -0.409 | -0.549 | -0.557 | -0.553 | -0.558 | -0.517 | -0.506 | -0.493 | -0.457 | -0.449 | |
| June | 9 -0.256 | -0.275 | -0.501 | -0.533 | -0.513 | -0.548 | -0.571 | -0.569 | -0.565 | -0.549 | -0.544 |
| | 19 -0.090 | -0.111 | -0.398 | -0.450 | -0.417 | -0.478 | -0.563 | -0.569 | -0.574 | -0.580 | -0.579 |
| | 29 +0.086 | +0.066 | -0.253 | -0.318 | -0.276 | -0.356 | -0.493 | -0.507 | -0.521 | -0.547 | -0.552 |
| July 9 | +0.253 | +0.234 | -0.079 | -0.152 | -0.105 | -0.195 | -0.369 | -0.389 | -0.412 | -0.455 | -0.464 |
| Aug. | 19 +0.391 | +0.377 | +0.103 | +0.032 | +0.079 | -0.013 | -0.204 | -0.230 | -0.257 | -0.314 | -0.325 |
| | 29 +0.488 | +0.479 | +0.274 | +0.212 | +0.254 | +0.171 | -0.017 | -0.044 | -0.074 | -0.137 | -0.151 |
| | 8 +0.531 | +0.529 | +0.416 | +0.369 | +0.411 | +0.336 | +0.172 | +0.147 | +0.118 | +0.055 | +0.041 |
| 18 +0.515 | +0.520 | +0.512 | +0.486 | +0.504 | +0.465 | +0.342 | +0.322 | +0.298 | +0.241 | +0.229 | |
| | 28 +0.442 | +0.453 | +0.551 | +0.549 | +0.551 | +0.543 | +0.476 | +0.461 | +0.444 | +0.401 | +0.392 |
| Sept. | 7 +0.319 | +0.335 | +0.528 | +0.551 | +0.537 | +0.560 | +0.556 | +0.550 | +0.542 | +0.517 | +0.511 |
| | 17 +0.158 | +0.178 | +0.445 | +0.489 | +0.461 | +0.513 | +0.574 | +0.577 | +0.578 | +0.575 | +0.574 |
| | 27 -0.021 | 0.000 | +0.311 | +0.371 | +0.333 | +0.406 | +0.525 | +0.536 | +0.548 | +0.567 | +0.569 |
| Oct. | 7 -0.199 | -0.180 | +0.139 | +0.210 | +0.164 | +0.253 | +0.416 | +0.434 | +0.454 | +0.492 | +0.499 |
| | 17 -0.354 | -0.339 | -0.049 | +0.023 | -0.025 | +0.068 | +0.256 | +0.280 | +0.306 | +0.360 | +0.371 |
| 27 -0.469 | -0.458 | -0.234 | -0.168 | -0.212 | -0.126 | +0.066 | +0.091 | +0.121 | +0.184 | +0.197 | |
| Nov. | 6 -0.527 | -0.524 | -0.391 | -0.340 | -0.374 | -0.305 | -0.133 | -0.109 | -0.079 | -0.015 | -0.002 |
| | 16 -0.521 | -0.525 | -0.501 | -0.471 | -0.491 | -0.449 | -0.318 | -0.297 | -0.272 | -0.213 | -0.201 |
| | 26 -0.452 | -0.463 | -0.550 | -0.545 | -0.549 | -0.537 | -0.464 | -0.449 | -0.430 | -0.386 | -0.377 |
| Dec. 6 | -0.326 | -0.344 | -0.531 | -0.552 | -0.540 | -0.560 | -0.553 | -0.546 | -0.538 | -0.512 | -0.506 |
| | 16 -0.160 | -0.181 | -0.447 | -0.491 | -0.463 | -0.514 | -0.574 | -0.576 | -0.578 | -0.575 | -0.573 |
| | 26 +0.026 | +0.004 | -0.307 | -0.368 | -0.328 | -0.404 | -0.523 | -0.535 | -0.546 | -0.565 | -0.569 |
| | 36 +0.209 | +0.189 | -0.129 | -0.200 | -0.153 | -0.243 | -0.408 | -0.427 | -0.447 | -0.486 | -0.494 |

TABLE III.—*Solar Nutation.*

| | 46 Aurigae | δ Urse maj. | ψ Urse maj. | γ Urse maj. | ϵ Urse maj. | ζ Urse maj. | η Urse maj. | δ Draconis | ϵ Herculis | ζ Draconis | γ Draconis | δ Cassiopeiae |
|---------|------------|--------------------|------------------|--------------------|----------------------|-------------------|------------------|-------------------|---------------------|------------------|-------------------|----------------------|
| 1. 0 | -0.548 | -0.348 | -0.330 | -0.231 | -0.081 | -0.003 | +0.056 | +0.510 | +0.519 | +0.535 | +0.536 | +0.195 |
| 10 | -0.447 | -0.468 | -0.456 | -0.384 | -0.259 | -0.189 | -0.134 | +0.383 | +0.396 | +0.424 | +0.426 | +0.355 |
| 20 | -0.291 | -0.531 | -0.525 | -0.487 | -0.405 | -0.352 | -0.308 | +0.208 | +0.224 | +0.260 | +0.263 | +0.470 |
| 30 | -0.100 | -0.527 | -0.530 | -0.531 | -0.500 | -0.471 | -0.442 | +0.008 | +0.026 | +0.064 | +0.069 | +0.528 |
| b. 9 | +0.104 | -0.459 | -0.469 | -0.510 | -0.534 | -0.531 | -0.522 | -0.193 | -0.176 | -0.138 | -0.135 | +0.520 |
| 19 | +0.294 | -0.334 | -0.351 | -0.426 | -0.502 | -0.527 | -0.539 | -0.368 | -0.355 | -0.323 | -0.320 | +0.447 |
| ar. 1 | +0.447 | -0.170 | -0.191 | -0.290 | -0.410 | -0.458 | -0.489 | -0.499 | -0.491 | -0.469 | -0.467 | +0.322 |
| 11 | +0.546 | +0.014 | -0.009 | -0.121 | -0.268 | -0.335 | -0.381 | -0.569 | -0.566 | -0.557 | -0.556 | +0.159 |
| 21 | +0.580 | +0.196 | +0.174 | +0.062 | -0.096 | -0.172 | -0.229 | -0.571 | -0.575 | -0.579 | -0.580 | -0.023 |
| 31 | +0.545 | +0.353 | +0.334 | +0.237 | +0.087 | +0.008 | -0.050 | -0.507 | -0.515 | -0.533 | -0.534 | -0.201 |
| pr. 10 | +0.448 | +0.468 | +0.456 | +0.383 | +0.258 | +0.188 | +0.133 | -0.384 | -0.397 | -0.424 | -0.427 | -0.355 |
| 20 | +0.299 | +0.529 | +0.523 | +0.484 | +0.400 | +0.345 | +0.300 | -0.217 | -0.233 | -0.269 | -0.272 | -0.466 |
| 30 | +0.117 | +0.530 | +0.532 | +0.531 | +0.494 | +0.462 | +0.433 | -0.026 | -0.044 | -0.083 | -0.086 | -0.525 |
| ay 10 | -0.077 | +0.471 | +0.481 | +0.516 | +0.533 | +0.527 | +0.515 | +0.167 | +0.150 | +0.112 | +0.108 | -0.524 |
| 20 | -0.262 | +0.360 | +0.376 | +0.445 | +0.512 | +0.533 | +0.541 | +0.340 | +0.326 | +0.293 | +0.290 | -0.465 |
| 30 | -0.416 | +0.209 | +0.229 | +0.325 | +0.435 | +0.479 | +0.506 | +0.474 | +0.465 | +0.441 | +0.438 | -0.355 |
| une 9 | -0.526 | +0.036 | +0.058 | +0.169 | +0.311 | +0.373 | +0.415 | +0.557 | +0.553 | +0.540 | +0.538 | -0.205 |
| 19 | -0.577 | -0.141 | -0.118 | -0.005 | +0.151 | +0.226 | +0.280 | +0.578 | +0.580 | +0.579 | +0.579 | -0.034 |
| 29 | -0.565 | -0.302 | -0.282 | -0.178 | -0.023 | +0.055 | +0.114 | +0.536 | +0.543 | +0.556 | +0.558 | +0.140 |
| uly 9 | -0.492 | -0.430 | -0.416 | -0.333 | -0.196 | -0.122 | -0.064 | +0.436 | +0.447 | +0.472 | +0.474 | +0.301 |
| 19 | -0.364 | -0.511 | -0.503 | -0.450 | -0.347 | -0.286 | -0.236 | +0.288 | +0.303 | +0.337 | +0.339 | +0.427 |
| 29 | -0.194 | -0.537 | -0.536 | -0.518 | -0.461 | -0.419 | -0.382 | +0.108 | +0.125 | +0.164 | +0.167 | +0.507 |
| Aug. 8 | -0.007 | -0.503 | -0.509 | -0.530 | -0.523 | -0.506 | -0.486 | -0.084 | -0.067 | -0.028 | -0.024 | +0.532 |
| 18 | +0.183 | -0.414 | -0.428 | -0.483 | -0.529 | -0.537 | -0.537 | -0.268 | -0.253 | -0.216 | -0.213 | +0.498 |
| 28 | +0.355 | -0.278 | -0.297 | -0.382 | -0.475 | -0.509 | -0.528 | -0.422 | -0.410 | -0.382 | -0.380 | +0.408 |
| Sept. 7 | +0.487 | -0.110 | -0.132 | -0.237 | -0.368 | -0.423 | -0.460 | -0.530 | -0.523 | -0.505 | -0.503 | +0.271 |
| 17 | +0.564 | +0.071 | +0.049 | -0.065 | -0.217 | -0.288 | -0.338 | -0.573 | -0.576 | -0.572 | -0.571 | +0.104 |
| 27 | +0.577 | +0.245 | +0.225 | +0.116 | -0.042 | -0.120 | -0.177 | -0.559 | -0.564 | -0.572 | -0.572 | -0.077 |
| Oct. 7 | +0.523 | +0.392 | +0.376 | +0.284 | +0.140 | +0.064 | +0.005 | -0.475 | -0.486 | -0.506 | -0.508 | -0.249 |
| 17 | +0.407 | +0.493 | +0.483 | +0.420 | +0.306 | +0.230 | +0.188 | -0.335 | -0.350 | -0.381 | -0.384 | -0.394 |
| 27 | +0.242 | +0.537 | +0.533 | +0.506 | +0.436 | +0.390 | +0.348 | -0.155 | -0.171 | -0.209 | -0.212 | -0.492 |
| Nov. 6 | +0.046 | +0.515 | +0.520 | +0.532 | +0.515 | +0.492 | +0.469 | +0.045 | +0.028 | -0.011 | -0.015 | -0.532 |
| 16 | -0.155 | +0.432 | +0.444 | +0.493 | +0.532 | +0.536 | +0.533 | +0.241 | +0.226 | +0.189 | +0.186 | -0.506 |
| 26 | -0.338 | +0.294 | +0.302 | +0.395 | +0.483 | +0.515 | +0.532 | +0.408 | +0.395 | +0.366 | +0.363 | -0.419 |
| Dec. 6 | -0.480 | +0.121 | +0.142 | +0.247 | +0.375 | +0.430 | +0.465 | +0.525 | +0.518 | +0.499 | +0.497 | -0.280 |
| 16 | -0.563 | -0.068 | -0.046 | +0.067 | +0.220 | +0.291 | +0.340 | +0.577 | +0.576 | +0.571 | +0.570 | -0.107 |
| 26 | -0.576 | -0.249 | -0.229 | -0.121 | +0.037 | +0.116 | +0.173 | +0.557 | +0.563 | +0.572 | +0.572 | +0.082 |
| 36 | -0.517 | -0.399 | -0.383 | -0.293 | -0.150 | -0.074 | -0.015 | +0.469 | +0.497 | +0.501 | +0.503 | +0.259 |

TABLE IV.—*Aberration.*

| | λ Cassiopeia | | | α Cassiopeia | | | τ Persei | | | α Persei | | | γ Persei | | | |
|-------|--------------|----------|----------------------|--------------|----------|----------------------|----------|----------|----------------------|----------|----------|----------------------|----------|----------|----------------------|------|
| | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | |
| | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | |
| Jan. | 0 | + 15.234 | - 122 | + 17 | + 15.734 | - 114 | + 14 | + 12.903 | + 39 | - 16 | + 11.219 | + 53 | - 22 | + 12.702 | + 45 | - 1 |
| | 10 | + 13.846 | - 160 | + 24 | + 14.467 | - 149 | + 22 | + 13.037 | - 7 | - 8 | + 11.556 | + 16 | - 16 | + 12.965 | + 6 | - 1 |
| | 20 | + 12.026 | - 201 | + 30 | + 12.750 | - 191 | + 28 | + 12.762 | - 47 | + 1 | + 11.530 | - 21 | - 8 | + 12.892 | - 34 | + 1 |
| | 30 | + 9.835 | - 234 | + 35 | + 10.638 | - 227 | + 33 | + 12.090 | - 86 | + 10 | + 11.145 | - 56 | - 2 | + 12.278 | - 73 | + 11 |
| Feb. | 9 | + 7.345 | - 260 | + 38 | + 8.202 | - 256 | + 37 | + 11.044 | - 121 | + 18 | + 10.412 | - 89 | + 7 | + 11.356 | - 110 | + 34 |
| | 19 | + 4.638 | - 277 | + 41 | + 5.522 | - 276 | + 40 | + 9.662 | - 153 | + 25 | + 9.366 | - 119 | + 13 | + 10.087 | - 142 | + 35 |
| | Mar. 1 | + 1.803 | - 286 | + 42 | + 2.687 | - 287 | + 42 | + 7.992 | - 179 | + 32 | + 8.036 | - 145 | + 21 | + 8.516 | - 170 | + 40 |
| | 11 | - 1.073 | - 285 | + 42 | - 0.215 | - 289 | + 42 | + 6.088 | - 199 | + 37 | + 6.471 | - 166 | + 26 | + 6.696 | - 192 | + 44 |
| Apr. | 21 | - 3.902 | - 276 | + 41 | - 3.095 | - 283 | + 41 | + 4.013 | - 213 | + 41 | + 4.720 | - 182 | + 31 | + 4.684 | - 202 | + 45 |
| | 31 | - 6.599 | - 259 | + 39 | - 5.868 | - 268 | + 39 | + 1.831 | - 220 | + 44 | + 2.839 | - 192 | + 35 | + 2.547 | - 217 | + 35 |
| | 10 | - 9.087 | - 235 | + 35 | - 8.453 | - 246 | + 36 | - 0.392 | - 221 | + 46 | + 0.887 | - 196 | + 38 | + 0.347 | - 220 | + 57 |
| | 20 | - 11.299 | - 205 | + 30 | - 10.778 | - 217 | + 31 | - 2.592 | - 216 | + 46 | - 1.081 | - 195 | + 40 | - 1.852 | - 217 | + 57 |
| May | 30 | - 13.177 | - 169 | + 25 | - 12.784 | - 182 | + 26 | - 4.706 | - 204 | + 45 | - 3.007 | - 188 | + 41 | - 3.985 | - 207 | + 53 |
| | 10 | - 14.672 | - 129 | + 19 | - 14.419 | - 143 | + 21 | - 6.676 | - 188 | + 43 | - 4.840 | - 176 | + 41 | - 5.996 | - 192 | + 53 |
| | 20 | - 15.750 | - 86 | + 13 | - 15.642 | - 100 | + 15 | - 8.456 | - 165 | + 42 | - 6.528 | - 159 | + 39 | - 7.829 | - 172 | + 49 |
| | 30 | - 16.384 | - 41 | + 6 | - 16.424 | - 55 | + 8 | - 9.984 | - 139 | + 35 | - 8.028 | - 139 | + 37 | - 9.438 | - 148 | + 43 |
| June | 9 | - 16.564 | + 5 | 0 | - 16.751 | - 10 | + 2 | - 11.237 | - 110 | + 30 | - 9.301 | - 115 | + 33 | - 10.781 | - 119 | + 35 |
| | 19 | - 16.286 | + 50 | - 8 | - 16.614 | + 36 | - 5 | - 12.177 | - 77 | + 24 | - 10.318 | - 87 | + 29 | - 11.825 | - 88 | + 29 |
| | 29 | - 15.562 | + 94 | - 14 | - 16.022 | + 81 | - 11 | - 12.782 | - 43 | + 18 | - 11.048 | - 58 | + 24 | - 12.543 | - 55 | + 30 |
| | July 9 | - 14.410 | + 135 | - 20 | - 14.988 | + 124 | - 18 | - 13.035 | - 7 | + 10 | - 11.474 | - 27 | + 17 | - 12.916 | - 20 | + 11 |
| Aug. | 19 | - 12.861 | + 173 | - 25 | - 13.543 | + 163 | - 23 | - 12.931 | + 28 | + 3 | - 11.587 | + 5 | + 12 | - 12.934 | + 16 | + 3 |
| | 29 | - 10.954 | + 206 | - 30 | - 11.721 | + 199 | - 28 | - 12.472 | + 64 | - 3 | - 11.379 | + 37 | + 5 | - 12.594 | + 51 | - 9 |
| | 8 | - 8.739 | + 234 | - 34 | - 9.570 | + 229 | - 32 | - 11.660 | + 97 | - 12 | - 10.855 | + 68 | - 2 | - 11.906 | + 86 | - 17 |
| | 18 | - 6.273 | + 256 | - 37 | - 7.145 | + 253 | - 35 | - 10.524 | + 129 | - 20 | - 10.027 | + 97 | - 8 | - 10.883 | + 113 | - 26 |
| Sept. | 28 | - 3.620 | + 271 | - 40 | - 4.507 | + 271 | - 39 | - 9.088 | + 157 | - 26 | - 8.914 | + 124 | - 15 | - 9.550 | + 147 | - 34 |
| | 7 | - 0.852 | + 279 | - 41 | - 1.731 | + 281 | - 40 | - 7.386 | + 184 | - 32 | - 7.543 | + 148 | - 21 | - 7.939 | + 173 | - 43 |
| | 17 | + 1.955 | + 279 | - 41 | + 1.109 | + 283 | - 40 | - 5.469 | + 201 | - 35 | - 5.948 | + 169 | - 27 | - 6.093 | + 194 | - 47 |
| | 27 | + 4.720 | + 270 | - 40 | + 3.934 | + 277 | - 40 | - 3.374 | + 215 | - 41 | - 4.172 | + 184 | - 32 | - 4.061 | + 210 | - 53 |
| Oct. | 7 | + 7.364 | + 254 | - 38 | + 6.658 | + 263 | - 38 | - 1.172 | + 223 | - 45 | - 2.264 | + 195 | - 36 | - 1.897 | + 220 | - 53 |
| | 17 | + 9.802 | + 230 | - 34 | + 9.202 | + 241 | - 35 | + 1.077 | + 224 | - 47 | - 0.278 | + 200 | - 39 | + 0.335 | + 223 | - 57 |
| | 27 | + 11.962 | + 198 | - 29 | + 11.483 | + 211 | - 31 | + 3.306 | + 218 | - 47 | + 1.728 | + 198 | - 41 | + 2.570 | + 220 | - 57 |
| | Nov. 6 | + 13.770 | + 160 | - 24 | + 13.428 | + 174 | - 26 | + 5.446 | + 206 | - 46 | + 3.691 | + 196 | - 42 | + 4.738 | + 210 | - 54 |
| Dec. | 16 | + 15.166 | + 117 | - 18 | + 14.972 | + 132 | - 20 | + 7.431 | + 187 | - 44 | + 5.551 | + 178 | - 41 | + 6.771 | + 193 | - 52 |
| | 26 | + 16.100 | + 68 | - 11 | + 16.060 | + 84 | - 13 | + 9.192 | + 162 | - 39 | + 7.247 | + 159 | - 39 | + 8.604 | + 170 | - 47 |
| | 6 | + 16.535 | + 18 | - 3 | + 16.653 | + 33 | - 6 | + 10.676 | + 132 | - 34 | + 8.723 | + 134 | - 36 | + 10.175 | + 141 | - 40 |
| | 16 | + 16.456 | - 34 | + 5 | + 16.727 | - 19 | + 2 | + 11.829 | + 95 | - 26 | + 9.932 | + 105 | - 32 | + 11.433 | + 108 | - 33 |
| | 26 | + 15.860 | - 84 | + 13 | + 16.277 | - 76 | + 9 | + 12.572 | + 57 | - 21 | + 10.829 | + 74 | - 26 | + 12.334 | + 76 | - 23 |
| | 36 | + 14.767 | - 133 | + 19 | + 15.314 | - 138 | + 17 | + 12.976 | + 18 | - 13 | + 11.389 | + 42 | - 21 | + 12.848 | + 45 | - 14 |

CONTINUATION OF TABLE IV.—*Aberration.*

| | 8 Persei | | | 9 Aurige | | | a Aurige | | | 18 Camelop. | | | 8 Aurige | | | 35 Camelop. | | |
|-------|----------|------------|----------------------|------------|------------|----------------------|------------|------------|----------------------|-------------|------------|----------------------|------------|--|----------------------|-------------|--|----------------------|
| | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. |
| | | | | | | | | | | | | | | | | | | |
| Jan. | 0 | + 10.048 | + 58 - 25 | + 6.471 | + 137 - 46 | + 5.138 | + 115 - 42 | + 5.544 | + 179 - 48 | + 3.396 | + 172 - 59 | + 2.809 | + 158 - 54 | | | | | |
| | 10 | + 10.476 | + 26 - 18 | + 7.720 | + 113 - 40 | + 6.181 | + 95 - 38 | + 7.223 | + 156 - 44 | + 5.081 | + 160 - 56 | + 4.375 | + 150 - 49 | | | | | |
| | 20 | + 10.576 | - 7 - 11 | + 8.727 | + 87 - 34 | + 7.030 | + 74 - 33 | + 8.672 | + 131 - 38 | + 6.604 | + 142 - 51 | + 5.803 | + 134 - 43 | | | | | |
| | 30 | + 10.344 | - 39 - 3 | + 9.458 | + 58 - 25 | + 7.658 | + 52 - 27 | + 9.848 | + 104 - 32 | + 7.918 | + 119 - 45 | + 7.047 | + 113 - 36 | | | | | |
| | Feb. 9 | + 9.793 | - 70 + 5 | + 9.894 | + 28 - 16 | + 8.046 | + 26 - 20 | + 10.714 | + 70 - 24 | + 8.982 | + 92 - 38 | + 8.068 | + 90 - 27 | | | | | |
| Mar. | 19 | + 8.941 | - 98 + 13 | + 10.024 | - 2 - 7 | + 8.184 | + 1 - 13 | + 11.248 | + 36 - 16 | + 9.766 | + 63 - 29 | + 8.837 | + 63 - 18 | | | | | |
| | 1 | + 7.821 | - 124 + 20 | + 9.846 | - 33 + 3 | + 8.072 | - 23 - 5 | + 11.436 | + 1 - 8 | + 10.247 | + 33 - 19 | + 9.333 | + 35 - 9 | | | | | |
| | 11 | + 6.470 | - 144 + 26 | + 9.372 | - 61 + 13 | + 7.717 | - 47 + 3 | + 11.276 | - 33 + 2 | + 10.417 | 0 - 10 | + 9.543 | + 7 + 2 | | | | | |
| | 21 | + 4.934 | - 161 + 31 | + 8.621 | - 88 + 21 | + 7.132 | - 69 + 11 | + 10.780 | - 65 + 11 | + 10.273 | - 30 + 1 | + 9.468 | - 22 + 11 | | | | | |
| | 31 | + 3.260 | - 172 + 36 | + 7.618 | - 111 + 29 | + 6.341 | - 88 + 18 | + 9.969 | - 96 + 19 | + 9.827 | - 59 + 11 | + 9.113 | - 49 + 20 | | | | | |
| Apr. | 10 | + 1.500 | - 178 + 39 | + 6.399 | - 131 + 37 | + 5.367 | - 105 + 25 | + 8.870 | - 122 + 27 | + 9.097 | - 86 + 20 | + 8.493 | - 74 + 28 | | | | | |
| | 20 | - 0.294 | - 178 + 41 | + 5.002 | - 147 + 42 | + 4.244 | - 118 + 31 | + 7.522 | - 145 + 33 | + 8.107 | - 110 + 29 | + 7.631 | - 97 + 36 | | | | | |
| | 30 | - 2.089 | - 174 + 42 | + 3.468 | - 158 + 47 | + 3.007 | - 128 + 36 | + 5.965 | - 164 + 39 | + 6.891 | - 131 + 37 | + 6.556 | - 117 + 43 | | | | | |
| | May 10 | - 3.779 | - 165 + 43 | + 1.844 | - 165 + 51 | + 1.690 | - 134 + 39 | + 4.247 | - 177 + 44 | + 5.486 | - 148 + 44 | + 5.301 | - 133 + 47 | | | | | |
| | 20 | - 5.373 | - 152 + 41 | + 0.176 | - 167 + 52 | + 0.331 | - 136 + 42 | + 2.417 | - 186 + 47 | + 3.933 | - 161 + 49 | + 3.902 | - 145 + 51 | | | | | |
| June | 30 | - 6.814 | - 134 + 39 | - 1.492 | - 164 + 53 | - 1.032 | - 135 + 44 | + 0.527 | - 190 + 49 | + 2.274 | - 169 + 54 | + 2.398 | - 153 + 54 | | | | | |
| | 9 | - 8.061 | - 114 + 35 | - 3.113 | - 157 + 52 | - 2.363 | - 130 + 44 | - 1.373 | - 188 + 50 | + 0.560 | - 172 + 56 | + 0.834 | - 157 + 55 | | | | | |
| | 19 | - 9.084 | - 90 + 31 | - 4.646 | - 147 + 49 | - 3.626 | - 121 + 43 | - 3.232 | - 181 + 49 | - 1.169 | - 171 + 58 | - 0.750 | - 157 + 59 | | | | | |
| | 29 | - 9.856 | - 63 + 26 | - 6.050 | - 132 + 46 | - 4.788 | - 110 + 41 | - 4.999 | - 170 + 47 | - 2.862 | - 165 + 57 | - 2.314 | - 153 + 52 | | | | | |
| | July 9 | - 10.352 | - 36 + 20 | - 7.287 | - 114 + 41 | - 5.818 | - 95 + 38 | - 6.629 | - 154 + 44 | - 4.477 | - 155 + 55 | - 3.812 | - 145 + 49 | | | | | |
| Aug. | 19 | - 10.573 | - 7 + 13 | - 8.325 | - 92 + 35 | - 6.690 | - 78 + 34 | - 8.078 | - 134 + 40 | - 5.970 | - 141 + 52 | - 5.207 | - 133 + 44 | | | | | |
| | 29 | - 10.499 | + 22 + 7 | - 9.135 | - 68 + 29 | - 7.378 | - 59 + 29 | - 9.307 | - 110 + 34 | - 7.301 | - 123 + 47 | - 6.462 | - 117 + 38 | | | | | |
| | Aug. 8 | - 10.133 | + 51 0 | - 9.693 | - 42 + 20 | - 7.864 | - 38 + 24 | - 10.280 | - 83 + 27 | - 8.433 | - 102 + 41 | - 7.540 | - 97 + 31 | | | | | |
| | 18 | - 9.484 | + 78 - 7 | - 9.983 | - 15 + 12 | - 8.131 | - 15 + 17 | - 10.971 | - 54 + 20 | - 9.334 | - 77 + 34 | - 8.411 | - 75 + 23 | | | | | |
| | 28 | - 8.565 | + 104 - 14 | - 9.994 | + 14 + 3 | - 8.172 | + 8 + 10 | - 11.356 | - 22 + 12 | - 9.976 | - 50 + 25 | - 9.049 | - 51 + 14 | | | | | |
| Sept. | 7 | - 7.399 | + 128 - 21 | - 9.722 | + 41 - 6 | - 7.981 | + 31 + 2 | - 11.420 | + 10 + 4 | - 10.338 | - 22 + 16 | - 9.434 | - 25 + 5 | | | | | |
| | 17 | - 6.015 | + 148 - 26 | - 9.169 | + 69 - 15 | - 7.560 | + 53 - 5 | - 11.158 | + 42 - 5 | - 10.406 | + 8 + 7 | - 9.550 | + 2 - 4 | | | | | |
| | 27 | - 4.449 | + 164 - 32 | - 8.347 | + 95 - 24 | - 6.917 | + 75 - 13 | - 10.571 | + 74 - 13 | - 10.172 | + 38 - 4 | - 9.391 | + 30 - 14 | | | | | |
| | Oct. 7 | - 2.743 | + 175 - 37 | - 7.277 | + 118 - 32 | - 6.069 | + 94 - 20 | - 9.671 | + 105 - 21 | - 9.639 | + 68 - 14 | - 8.949 | + 57 - 26 | | | | | |
| | 17 | - 0.947 | + 182 - 40 | - 5.985 | + 139 - 38 | - 5.035 | + 111 - 27 | - 8.480 | + 132 - 29 | - 8.817 | + 96 - 23 | - 8.252 | + 83 - 31 | | | | | |
| Nov. | 27 | + 0.887 | + 183 - 42 | - 4.506 | + 155 - 44 | - 3.845 | + 125 - 33 | - 7.026 | + 156 - 36 | - 7.727 | + 121 - 32 | - 7.297 | + 107 - 38 | | | | | |
| | 6 | + 2.705 | + 178 - 43 | - 2.883 | + 167 - 49 | - 2.532 | + 135 - 38 | - 5.353 | + 176 - 42 | - 6.397 | + 143 - 41 | - 6.116 | + 128 - 45 | | | | | |
| | 16 | + 4.449 | + 168 - 43 | - 1.163 | + 174 - 53 | - 1.137 | + 142 - 41 | - 3.508 | + 190 - 47 | - 4.864 | + 161 - 48 | - 4.739 | + 145 - 52 | | | | | |
| | 26 | + 6.061 | + 152 - 41 | + 0.599 | + 176 - 55 | + 0.300 | + 144 - 44 | - 1.548 | + 198 - 50 | - 3.176 | + 174 - 53 | - 3.217 | + 158 - 54 | | | | | |
| | Dec. 6 | + 7.495 | + 132 - 40 | + 2.348 | + 171 - 54 | + 1.733 | + 142 - 45 | + 0.468 | + 201 - 52 | - 1.382 | + 182 - 57 | - 1.586 | + 156 - 57 | | | | | |
| 16 | + 8.691 | + 103 - 34 | + 4.028 | + 162 - 53 | + 3.116 | + 133 - 46 | + 2.474 | + 197 - 52 | + 0.458 | + 183 - 59 | + 0.098 | + 158 - 56 | | | | | | |
| | 26 | + 9.564 | + 76 - 28 | + 5.585 | + 147 - 49 | + 4.402 | + 122 - 44 | + 4.405 | + 186 - 50 | + 2.287 | + 179 - 60 | + 1.781 | + 156 - 55 | | | | | |
| | 36 | + 10.203 | + 52 - 22 | + 6.966 | + 125 - 44 | + 5.550 | + 105 - 40 | + 6.198 | + 168 - 47 | + 4.045 | + 172 - 58 | + 3.410 | + 145 - 52 | | | | | |

CONTINUATION OF TABLE IV.—*Aberration.*

| | 46 Aurige | | | β Ursae maj. | | | ψ Ursae maj. | | | γ Ursae maj. | | | ε Ursae maj. | | | ζ Ursae maj. | | | |
|-------|-----------|---------|----------------------|--------------|----------|----------------------|--------------|----------|----------------------|--------------|----------|----------------------|--------------|----------|----------------------|--------------|----------|-------|------|
| | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | | |
| | | | | | | | | | | | | | | | | | | | |
| Jan. | 0 | + 1.277 | + 154 | - 52 | - 15.865 | + 60 | - 14 | - 14.074 | + 11 | - 3 | - 16.876 | - 5 | 0 | - 17.783 | - 75 | + 10 | - 17.349 | - 121 | + 17 |
| | 10 | + 2.804 | + 148 | - 50 | - 14.988 | + 111 | - 23 | - 13.742 | + 55 | - 9 | - 16.664 | + 47 | - 7 | - 18.235 | - 17 | + 2 | - 18.246 | - 59 | + 12 |
| | 20 | + 4.240 | + 137 | - 46 | - 13.643 | + 156 | - 31 | - 12.981 | + 96 | - 14 | - 15.929 | + 98 | - 15 | - 18.117 | + 40 | - 6 | - 18.525 | + 1 | + 6 |
| | 30 | + 5.541 | + 121 | - 40 | - 11.875 | + 195 | - 38 | - 11.816 | + 135 | - 19 | - 14.699 | + 146 | - 22 | - 17.432 | + 95 | - 14 | - 18.227 | + 58 | + 2 |
| Feb. | 9 | + 6.667 | + 102 | - 34 | - 9.743 | + 228 | - 44 | - 10.289 | + 168 | - 22 | - 13.017 | + 188 | - 28 | - 16.209 | + 147 | - 21 | - 17.363 | + 113 | - 4 |
| | 19 | + 7.583 | + 80 | - 26 | - 7.320 | + 253 | - 48 | - 8.449 | + 196 | - 26 | - 10.939 | + 224 | - 33 | - 14.491 | + 194 | - 28 | - 15.967 | + 164 | - 9 |
| | Mar. 1 | + 8.262 | + 55 | - 17 | - 4.685 | + 270 | - 50 | - 6.360 | + 218 | - 29 | - 8.538 | + 252 | - 37 | - 12.339 | + 233 | - 34 | - 14.090 | + 209 | - 14 |
| | 11 | + 8.689 | + 30 | - 8 | - 1.921 | + 279 | - 52 | - 4.090 | + 233 | - 30 | - 5.891 | + 273 | - 40 | - 9.824 | + 266 | - 38 | - 11.797 | + 246 | - 17 |
| Apr. | 21 | + 8.854 | + 3 | + 1 | + 0.885 | + 279 | - 51 | - 1.709 | + 240 | - 31 | - 3.082 | + 285 | - 41 | - 7.029 | + 289 | - 41 | - 9.163 | + 276 | - 21 |
| | 31 | + 8.756 | - 23 | + 9 | + 3.649 | + 270 | - 49 | + 0.708 | + 240 | - 31 | - 0.198 | + 288 | - 41 | - 4.043 | + 304 | - 43 | - 6.275 | + 297 | - 23 |
| | 10 | + 8.403 | - 47 | + 18 | + 6.291 | + 254 | - 46 | + 3.091 | + 233 | - 29 | + 2.677 | + 283 | - 41 | - 0.955 | + 309 | - 44 | - 3.218 | + 310 | - 26 |
| | 20 | + 7.808 | - 70 | + 26 | + 8.736 | + 231 | - 41 | + 5.372 | + 220 | - 26 | + 5.456 | + 269 | - 38 | + 2.143 | + 306 | - 43 | - 0.085 | + 313 | - 27 |
| May | 30 | + 6.994 | - 91 | + 33 | + 10.919 | + 202 | - 35 | + 7.486 | + 200 | - 24 | + 8.066 | + 249 | - 36 | + 5.164 | + 294 | - 42 | + 3.032 | + 307 | - 27 |
| | 10 | + 5.985 | - 109 | + 39 | + 12.782 | + 168 | - 29 | + 9.379 | + 176 | - 21 | + 10.436 | + 222 | - 32 | + 8.024 | + 274 | - 38 | + 6.051 | + 293 | - 27 |
| | 20 | + 4.813 | - 124 | + 44 | + 14.278 | + 130 | - 21 | + 11.001 | + 147 | - 18 | + 12.501 | + 189 | - 27 | + 10.646 | + 247 | - 34 | + 8.886 | + 271 | - 26 |
| | 30 | + 3.510 | - 135 | + 48 | + 15.372 | + 88 | - 14 | + 12.310 | + 114 | - 13 | + 14.212 | + 151 | - 21 | + 12.963 | + 213 | - 29 | + 11.463 | + 242 | - 24 |
| June | 9 | + 2.115 | - 142 | + 50 | + 16.036 | + 44 | - 5 | + 13.275 | + 78 | - 9 | + 15.524 | + 110 | - 16 | + 14.915 | + 174 | - 24 | + 13.716 | + 206 | - 22 |
| | 19 | + 0.664 | - 146 | + 51 | + 16.258 | 0 | + 3 | + 13.872 | + 41 | - 4 | + 16.406 | + 66 | - 9 | + 16.451 | + 131 | - 18 | + 15.587 | + 166 | - 20 |
| | 29 | - 0.804 | - 146 | + 52 | + 16.033 | - 44 | + 12 | + 14.087 | + 2 | + 2 | + 16.836 | + 20 | - 2 | + 17.534 | + 84 | - 11 | + 17.027 | + 121 | - 16 |
| | July 9 | - 2.250 | - 142 | + 49 | + 15.376 | - 88 | + 19 | + 13.916 | - 36 | + 6 | + 16.804 | - 26 | + 4 | + 18.135 | + 35 | - 5 | + 17.999 | + 72 | - 13 |
| Aug. | 13 | - 3.635 | - 134 | + 46 | + 14.278 | - 129 | + 27 | + 13.361 | - 74 | + 11 | + 16.309 | - 72 | + 11 | + 18.239 | - 15 | + 3 | + 18.476 | + 22 | - 8 |
| | 29 | - 4.923 | - 122 | + 42 | + 12.793 | - 166 | + 33 | + 12.438 | - 110 | + 15 | + 15.364 | - 116 | + 17 | + 17.838 | - 65 | + 10 | + 18.445 | - 29 | - 4 |
| | 8 | - 6.075 | - 107 | + 36 | + 10.951 | - 200 | + 38 | + 11.166 | - 143 | + 19 | + 13.990 | - 157 | + 23 | + 16.943 | - 113 | + 16 | + 17.903 | - 79 | + 1 |
| | 18 | - 7.063 | - 89 | + 29 | + 8.796 | - 228 | + 43 | + 9.579 | - 172 | + 23 | + 12.221 | - 194 | + 28 | + 15.571 | - 159 | + 23 | + 16.860 | - 128 | + 5 |
| Sept. | 28 | - 7.857 | - 68 | + 22 | + 6.385 | - 251 | + 47 | + 7.717 | - 198 | + 26 | + 10.102 | - 227 | + 33 | + 13.757 | - 201 | + 29 | + 15.338 | - 174 | + 10 |
| | 7 | - 8.432 | - 46 | + 14 | + 3.782 | - 266 | + 49 | + 5.627 | - 218 | + 28 | + 7.687 | - 253 | + 36 | + 11.543 | - 238 | + 34 | + 13.375 | - 216 | + 14 |
| | 17 | - 8.768 | - 21 | + 6 | + 1.057 | - 275 | + 51 | + 3.364 | - 232 | + 30 | + 5.038 | - 273 | + 39 | + 8.988 | - 269 | + 38 | + 11.017 | - 252 | + 18 |
| | 27 | - 8.852 | + 5 | - 3 | - 1.714 | - 275 | + 50 | + 0.992 | - 239 | + 31 | + 2.229 | - 285 | + 41 | + 6.158 | - 298 | + 41 | + 8.328 | - 282 | + 29 |
| Oct. | 7 | - 8.677 | + 30 | - 12 | - 4.451 | - 268 | + 48 | - 1.423 | - 240 | + 31 | - 0.661 | - 289 | + 41 | + 3.133 | - 308 | + 43 | + 5.379 | - 304 | + 24 |
| | 17 | - 8.244 | + 56 | - 21 | - 7.070 | - 252 | + 45 | - 3.809 | - 234 | + 29 | - 3.548 | - 284 | + 40 | - 0.005 | - 315 | + 44 | + 2.255 | - 317 | + 27 |
| | 27 | - 7.561 | + 80 | - 29 | - 9.493 | - 229 | + 42 | - 6.095 | - 220 | + 28 | - 6.346 | - 272 | + 39 | - 3.159 | - 311 | + 44 | - 0.955 | - 320 | + 28 |
| | 6 | - 6.646 | + 102 | - 35 | - 11.641 | - 197 | + 35 | - 8.207 | - 199 | + 24 | - 8.965 | - 249 | + 36 | - 6.233 | - 299 | + 42 | - 4.153 | - 314 | + 29 |
| Nov. | 16 | - 5.523 | + 121 | - 42 | - 13.442 | - 160 | + 27 | - 10.079 | - 172 | + 21 | - 11.322 | - 219 | + 31 | - 9.132 | - 276 | + 39 | - 7.238 | - 298 | + 28 |
| | 26 | - 4.224 | + 137 | - 47 | - 14.836 | - 117 | + 19 | - 11.647 | - 139 | + 17 | - 13.340 | - 181 | + 26 | - 11.760 | - 245 | + 34 | - 10.114 | - 272 | + 27 |
| | Dec. 6 | - 2.791 | + 148 | - 50 | - 15.774 | - 69 | + 11 | - 12.859 | - 101 | + 12 | - 14.949 | - 138 | + 19 | - 14.033 | - 206 | + 30 | - 12.684 | - 238 | + 26 |
| | 16 | - 1.267 | + 155 | - 52 | - 16.221 | - 19 | + 1 | - 13.671 | - 60 | + 6 | - 16.096 | - 90 | + 13 | - 15.871 | - 159 | + 22 | - 14.865 | - 195 | + 23 |
| 26 | + 0.300 | + 156 | - 53 | - 16.161 | + 32 | - 8 | - 14.058 | - 17 | + 1 | - 16.740 | - 38 | + 5 | - 17.216 | - 107 | + 15 | - 16.583 | - 146 | + 19 | |
| | 36 | + 1.858 | + 149 | - 52 | - 15.589 | + 79 | - 19 | - 14.001 | + 27 | - 5 | - 16.859 | + 18 | - 2 | - 18.019 | - 51 | + 7 | - 17.780 | - 94 | + 15 |

CONTINUATION OF TABLE IV.—*Aberration.*

| η Ursae maj. | | | β Draconis | | | ι Herculis | | | ξ Draconis | | | γ Draconis | | | β Cassiopeiae | | | | |
|-------------------|----------|----------------------|------------------|----------------------|----------|----------------------|----------|----------------------|----------------|----------------------|----------|----------------------|----------|----------------------|---------------------|----------------------|----------|-------|------|
| | 1730 | Variation in 10 yrs. | 1730 | Variation in 10 yrs. | 1730 | Variation in 10 yrs. | 1730 | Variation in 10 yrs. | 1730 | Variation in 10 yrs. | 1730 | Variation in 10 yrs. | 1730 | Variation in 10 yrs. | 1730 | Variation in 10 yrs. | | | |
| an. | 0 | - 15.992 | - 152 | + 18 | - 5.853 | - 350 | + 4 | - 5.066 | - 342 | + 20 | - 4.297 | - 343 | + 15 | - 4.077 | - 338 | + 18 | + 16.033 | - 132 | + 18 |
| 10 | - 17.211 | - 95 | + 10 | - 9.066 | - 307 | - 2 | - 8.215 | - 302 | + 19 | - 7.672 | - 325 | + 14 | - 7.393 | - 320 | + 17 | + 14.443 | - 181 | + 26 | |
| 20 | - 17.890 | - 40 | + 4 | - 11.993 | - 274 | - 7 | - 11.103 | - 271 | + 18 | - 10.800 | - 296 | + 12 | - 10.472 | - 291 | + 16 | + 12.404 | - 223 | + 32 | |
| 30 | - 18.009 | + 16 | - 3 | - 14.537 | - 232 | - 13 | - 13.638 | - 232 | + 16 | - 13.586 | - 257 | + 11 | - 13.218 | - 253 | + 14 | + 9.982 | - 257 | + 36 | |
| 'eb. | 9 | - 17.568 | + 71 | - 11 | - 16.623 | - 183 | - 19 | - 15.742 | - 186 | + 13 | - 15.943 | - 211 | + 9 | - 15.546 | - 208 | + 11 | + 7.257 | - 283 | + 40 |
| | 19 | - 16.589 | + 123 | - 16 | - 18.190 | - 129 | - 23 | - 17.354 | - 134 | + 10 | - 17.797 | - 158 | + 7 | - 17.385 | - 157 | + 8 | + 4.320 | - 300 | + 42 |
| Mar. | 1 | - 15.106 | + 171 | - 23 | - 19.193 | - 71 | - 26 | - 18.427 | - 79 | + 7 | - 19.100 | - 101 | + 5 | - 18.686 | - 102 | + 6 | + 1.264 | - 306 | + 43 |
| 11 | - 13.176 | + 212 | - 27 | - 19.611 | - 12 | - 29 | - 18.938 | - 23 | + 3 | - 19.820 | - 42 | + 3 | - 19.415 | - 44 | + 3 | - 1.815 | - 304 | + 43 | |
| 21 | - 10.861 | + 247 | - 31 | - 19.440 | + 46 | - 31 | - 18.880 | + 34 | 0 | - 19.943 | + 17 | 0 | - 19.560 | + 15 | 0 | - 4.823 | - 293 | + 41 | |
| 31 | - 8.239 | + 274 | - 34 | - 18.696 | + 102 | - 32 | - 18.265 | + 88 | - 3 | - 19.475 | + 75 | - 3 | - 19.124 | + 71 | - 3 | - 7.671 | - 273 | + 38 | |
| Apr. | 10 | - 5.390 | + 292 | - 36 | - 17.409 | + 153 | - 32 | - 17.119 | + 139 | - 6 | - 18.441 | + 130 | - 4 | - 18.133 | + 125 | - 6 | - 10.276 | - 245 | + 34 |
| 20 | - 2.402 | + 302 | - 37 | - 15.627 | + 200 | - 30 | - 15.484 | + 185 | - 9 | - 16.880 | + 170 | - 6 | - 16.624 | + 174 | - 8 | - 12.574 | - 211 | + 29 | |
| 30 | + 0.640 | + 303 | - 37 | - 13.406 | + 241 | - 28 | - 13.416 | + 225 | - 11 | - 14.844 | + 224 | - 8 | - 14.647 | + 218 | - 9 | - 14.500 | - 172 | + 24 | |
| May | 10 | + 3.649 | + 295 | - 36 | - 10.817 | + 274 | - 25 | - 10.977 | + 259 | - 13 | - 12.397 | + 262 | - 9 | - 12.264 | + 255 | - 12 | - 16.007 | - 128 | + 19 |
| 20 | + 6.542 | + 280 | - 33 | - 7.936 | + 299 | - 21 | - 8.241 | + 285 | - 15 | - 9.614 | + 291 | - 10 | - 9.548 | + 284 | - 13 | - 17.053 | - 81 | + 11 | |
| | 30 | + 9.243 | + 257 | - 30 | - 4.844 | + 316 | - 17 | - 5.284 | + 303 | - 16 | - 6.572 | + 313 | - 11 | - 6.575 | + 306 | - 14 | - 17.623 | - 33 | + 4 |
| June | 9 | + 11.680 | + 227 | - 26 | - 1.626 | + 324 | - 12 | - 2.191 | + 312 | - 16 | - 3.357 | + 331 | - 11 | - 3.429 | + 319 | - 14 | - 17.705 | + 16 | - 2 |
| 19 | + 13.792 | + 192 | - 22 | + 1.631 | + 323 | - 8 | + 0.958 | + 313 | - 17 | - 0.056 | + 330 | - 11 | - 0.195 | + 324 | - 14 | - 17.298 | + 64 | - 9 | |
| 29 | + 15.521 | + 152 | - 17 | + 4.839 | + 314 | - 3 | + 4.076 | + 306 | - 17 | + 3.243 | + 325 | - 11 | + 3.042 | + 319 | - 14 | - 16.417 | + 111 | - 15 | |
| July | 9 | + 16.824 | + 107 | - 12 | + 7.912 | + 297 | + 4 | + 7.082 | + 291 | - 16 | + 6.453 | + 312 | - 11 | + 6.194 | + 307 | - 13 | - 15.084 | + 154 | - 21 |
| | 19 | + 17.665 | + 60 | - 6 | + 10.772 | + 271 | + 8 | + 9.896 | + 268 | - 15 | + 9.487 | + 292 | - 10 | + 9.179 | + 286 | - 13 | - 13.335 | + 193 | - 27 |
| 29 | + 18.020 | + 11 | + 1 | + 13.339 | + 239 | + 13 | + 12.442 | + 238 | - 14 | + 12.266 | + 261 | - 9 | + 11.916 | + 258 | - 12 | - 11.215 | + 228 | - 32 | |
| Aug. | 8 | + 17.878 | - 39 | + 6 | + 15.544 | + 199 | + 17 | + 14.649 | + 201 | - 12 | + 14.711 | + 224 | - 7 | + 14.330 | + 222 | - 11 | - 8.780 | + 256 | - 35 |
| 18 | + 17.236 | - 89 | + 12 | + 17.322 | + 154 | + 21 | + 16.458 | + 158 | - 10 | + 16.755 | + 181 | - 6 | + 16.351 | + 180 | - 8 | - 6.091 | + 278 | - 39 | |
| 28 | + 16.107 | - 136 | + 18 | + 18.620 | + 104 | + 25 | + 17.807 | + 110 | - 7 | + 18.336 | + 132 | - 5 | + 17.922 | + 132 | - 7 | - 3.220 | + 292 | - 41 | |
| Sept. | 7 | + 14.516 | - 180 | + 23 | + 19.397 | + 50 | + 28 | + 18.658 | + 59 | - 5 | + 19.404 | + 79 | - 4 | + 18.991 | + 80 | - 5 | - 0.244 | + 298 | - 42 |
| 17 | + 12.499 | - 220 | + 28 | + 19.621 | - 6 | + 29 | + 18.981 | + 5 | - 3 | + 19.921 | + 23 | - 1 | + 19.522 | + 25 | - 2 | + 2.752 | + 297 | - 41 | |
| | 27 | + 10.111 | - 254 | + 32 | + 19.279 | - 63 | + 31 | + 18.755 | - 50 | + 1 | + 19.865 | - 35 | + 2 | + 19.490 | - 32 | + 1 | + 5.689 | + 286 | - 40 |
| Oct. | 7 | + 7.412 | - 282 | + 35 | + 18.369 | - 118 | + 31 | + 17.977 | - 105 | + 5 | + 19.225 | - 93 | + 3 | + 18.887 | - 88 | + 4 | + 8.474 | + 267 | - 37 |
| 17 | + 4.479 | - 301 | + 37 | + 16.910 | - 172 | + 31 | + 16.664 | - 157 | + 8 | + 18.014 | - 148 | + 5 | + 17.721 | - 144 | + 6 | + 11.024 | + 239 | - 34 | |
| | 27 | + 1.394 | - 311 | + 38 | + 14.935 | - 221 | + 31 | + 14.842 | - 205 | + 11 | + 16.254 | - 201 | + 7 | + 16.017 | - 195 | + 9 | + 13.258 | + 204 | - 29 |
| Nov. | 6 | - 1.749 | - 312 | + 38 | + 12.498 | - 263 | + 29 | + 12.562 | - 248 | + 14 | + 13.993 | - 248 | + 9 | + 13.818 | - 242 | + 12 | + 15.100 | + 162 | - 23 |
| 16 | - 4.853 | - 304 | + 37 | + 9.667 | - 298 | + 26 | + 9.887 | - 283 | + 16 | + 11.293 | - 288 | + 11 | + 11.187 | - 282 | + 14 | + 16.491 | + 114 | - 16 | |
| 26 | - 7.819 | - 285 | + 34 | + 6.527 | - 325 | + 22 | + 6.896 | - 310 | + 18 | + 8.235 | - 319 | + 12 | + 8.199 | - 312 | + 16 | + 17.377 | + 62 | - 8 | |
| Dec. | 6 | - 10.554 | - 257 | + 31 | + 3.173 | - 341 | + 18 | + 3.680 | - 328 | + 19 | + 4.909 | - 341 | + 14 | + 4.948 | - 333 | + 17 | + 17.727 | + 7 | - 1 |
| | 16 | - 12.965 | - 221 | + 27 | - 0.289 | - 346 | + 13 | + 0.342 | - 335 | + 20 | + 1.422 | - 351 | + 15 | + 1.533 | - 344 | + 18 | + 17.524 | - 48 | + 7 |
| 26 | - 14.973 | - 177 | + 21 | - 3.747 | - 340 | + 8 | - 3.013 | - 331 | + 21 | - 2.115 | - 350 | + 15 | - 1.935 | - 344 | + 18 | + 16.772 | - 102 | + 14 | |
| 36 | - 16.511 | - 126 | + 15 | - 7.087 | - 324 | + 2 | - 6.273 | - 315 | + 19 | - 5.586 | - 339 | + 14 | - 5.343 | - 334 | + 18 | + 15.492 | - 154 | + 22 | |

TABLE V.—*Reduction of the Wanstead Observations.*

λ CASSIOPEÆ.

Assuming $P = 36^\circ 55' + 99''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|----------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 Sept. 10 | 145.5 | 143.88 | — 46.56 | + 1.55 | + 0.32 | — 0.79 | — 45.48 | 98.40 |
| | 143.1 | 141.51 | — 46.28 | + 1.60 | + 0.20 | + 1.27 | — 43.21 | 98.30 |
| | 139.0 | 137.45 | — 45.68 | + 1.66 | + 0.01 | + 4.33 | — 39.68 | 97.77 |
| | 140.4 | 138.84 | — 45.62 | + 1.67 | — 0.01 | + 4.61 | — 39.35 | 99.49 |
| | 139.7 | 138.14 | — 45.46 | + 1.69 | — 0.07 | + 5.42 | — 38.42 | 99.72 |
| | 124.9 | 123.51 | — 42.49 | + 2.00 | — 0.48 | + 15.83 | — 25.14 | 98.37 |
| | 123.6 | 122.22 | — 42.38 | + 2.01 | — 0.47 | + 15.99 | — 24.85 | 97.37 |
| | 123.3 | 121.93 | — 41.94 | + 2.05 | — 0.37 | + 16.43 | — 23.83 | 98.10 |
| | 122.4 | 121.04 | — 41.22 | + 2.13 | — 0.17 | + 16.46 | — 22.80 | 98.24 |
| | 122.3 | 120.94 | — 40.84 | + 2.17 | — 0.04 | + 16.14 | — 22.57 | 98.37 |
| | 122.2 | 120.84 | — 40.78 | + 2.18 | — 0.02 | + 16.05 | — 22.57 | 98.27 |
| | 122.4 | 121.04 | — 40.73 | + 2.18 | 0.00 | + 15.98 | — 22.57 | 98.47 |
| 1728 Jan. 1 | 123.4 | 122.03 | — 41.17 | + 2.24 | + 0.18 | + 14.94 | — 22.81 | 99.22 |
| | 123.8 | 122.42 | — 39.73 | + 2.28 | + 0.32 | + 13.79 | — 23.34 | 99.08 |
| | 124.3 | 122.92 | — 39.46 | + 2.30 | + 0.38 | + 12.93 | — 23.85 | 99.07 |
| | 101.0 | 99.88 | — 22.02 | + 3.98 | — 0.42 | + 16.25 | — 2.21 | 97.67 |
| | 101.3 | 100.18 | — 21.75 | + 4.01 | — 0.36 | + 16.46 | — 1.64 | 98.54 |
| | 100.3 | 99.19 | — 21.36 | + 4.04 | — 0.25 | + 16.56 | — 1.01 | 98.18 |
| | 101.0 | 99.88 | — 21.31 | + 4.04 | — 0.23 | + 16.56 | — 0.94 | 98.94 |
| | 101.0 | 99.88 | — 21.25 | + 4.05 | — 0.22 | + 16.55 | — 0.87 | 99.01 |
| | 101.0 | 99.88 | — 21.09 | + 4.06 | — 0.17 | + 16.48 | — 0.72 | 99.16 |
| | 100.2 | 99.09 | — 20.81 | + 4.08 | — 0.09 | + 16.26 | — 0.56 | 98.53 |
| | 99.5 | 98.39 | — 20.59 | + 4.10 | — 0.02 | + 16.00 | — 0.51 | 97.88 |
| 1729 Jan. 1 | 99.5 | 98.39 | — 20.13 | + 4.15 | + 0.14 | + 15.22 | — 0.62 | 97.77 |
| | 78.7 | 77.82 | — 1.28 | + 5.55 | — 0.28 | + 16.57 | + 20.56 | 98.38 |
| | 78.5 | 77.62 | — 1.06 | + 5.56 | — 0.21 | + 16.53 | + 20.82 | 98.44 |
| | 76.2 | 75.35 | — 1.01 | + 5.56 | — 0.19 | + 16.51 | + 20.87 | 96.22 |
| | 79.5 | 78.61 | — 0.89 | + 5.57 | — 0.16 | + 16.45 | + 20.97 | 99.58 |
| | 78.5 | 77.62 | — 0.62 | + 5.59 | — 0.08 | + 16.22 | + 21.11 | 98.73 |
| | 78.3 | 77.43 | — 0.56 | + 5.59 | — 0.06 | + 16.16 | + 21.13 | 98.56 |
| | 56.7 | 56.07 | + 19.63 | + 6.49 | — 0.04 | + 16.11 | + 42.19 | 98.26 |
| | 56.5 | 55.87 | + 20.35 | + 6.51 | + 0.20 | + 14.77 | + 41.83 | 97.70 |
| | 39.0 | 38.57 | + 41.42 | + 6.65 | + 0.44 | + 11.96 | + 60.47 | 99.04 |
| 1730 Dec. 23 | 19.0 | 18.79 | + 61.01 | + 6.02 | + 0.32 | + 13.83 | + 81.18 | 99.07 |
| | 19.8 | 19.58 | + 100.16 | + 3.02 | — 0.06 | + 16.17 | + 119.29 | 99.71 |
| | 19.0 | 18.79 | + 100.82 | + 2.85 | + 0.17 | + 15.04 | + 118.88 | 100.09 |
| | 20.0 | 19.78 | + 100.99 | + 2.83 | + 0.22 | + 14.64 | + 118.68 | 98.90 |
| | 95.0 | 93.94 | + 181.40 | — 5.42 | + 0.17 | + 15.04 | + 191.19 | 97.25 |
| 1739 Jan. 2 | 91.5 | 90.48 | + 181.73 | — 5.44 | + 0.27 | + 14.20 | + 190.76 | 100.28 |

TABLE V.—*Reduction of the Wanstead Observations.*

a CASSIOPEÆ.

Assuming $P = 34^\circ 55' + 13''$.

| Day of Observation. | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|---------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 Sept. | 10 | 60.8 | 60.12 | -45.96 | +1.88 | +0.29 | - 1.00 | -43.37 16.75 |
| | 15 | 56.3 | 55.68 | -45.69 | +1.91 | +0.22 | + 0.42 | -43.14 12.54 |
| | 19 | 55.0 | 54.39 | -45.48 | +1.93 | +0.16 | + 1.54 | -41.85 12.54 |
| | 20 | 55.6 | 54.98 | -45.42 | +1.94 | +0.14 | + 1.82 | -41.52 13.46 |
| | 22 | 54.7 | 54.09 | -45.31 | +1.95 | +0.12 | + 2.39 | -40.85 13.24 |
| | 26 | 54.5 | 53.89 | -45.10 | +1.98 | +0.06 | + 3.53 | -39.53 14.36 |
| | 27 | 52.0 | 51.42 | -45.04 | +1.98 | +0.04 | + 3.81 | -39.21 12.21 |
| | 30 | 52.9 | 52.31 | -44.87 | +2.00 | -0.01 | + 4.64 | -38.24 14.07 |
| | Oct. 19 | 46.8 | 46.27 | -43.84 | +2.11 | -0.36 | + 9.57 | -32.52 13.75 |
| | 23 | 45.5 | 44.99 | -43.63 | +2.13 | -0.41 | +10.39 | -31.52 13.47 |
| | Nov. 6 | 40.0 | 39.55 | -42.86 | +2.21 | -0.52 | +13.38 | -27.79 11.76 |
| | 23 | 38.0 | 37.58 | -41.94 | +2.31 | -0.48 | +15.83 | -24.28 13.30 |
| Dec. | 25 | 37.5 | 37.08 | -41.84 | +2.32 | -0.47 | +15.93 | -24.06 13.02 |
| | 3 | 36.5 | 36.09 | -41.40 | +2.36 | -0.39 | +16.23 | -23.20 12.89 |
| | 16 | 36.2 | 35.80 | -40.69 | +2.43 | -0.19 | +16.72 | -21.73 14.07 |
| | 23 | 34.7 | 34.31 | -40.31 | +2.48 | -0.08 | +16.48 | -21.43 12.88 |
| | 24 | 34.2 | 33.82 | -40.26 | +2.48 | -0.06 | +16.42 | -21.42 12.40 |
| 1728 Jan. | 25 | 34.2 | 33.82 | -40.21 | +2.49 | -0.04 | +16.35 | -21.41 12.41 |
| | 1 | 35.0 | 34.61 | -39.63 | +2.55 | +0.16 | +15.46 | -21.46 13.51 |
| | 9 | 35.0 | 34.61 | -39.23 | +2.59 | +0.30 | +14.42 | -21.92 12.69 |
| | 14 | 36.0 | 35.60 | -38.96 | +2.62 | +0.37 | +13.61 | -22.36 13.21 |
| | 27 | 38.0 | 37.58 | -38.25 | +2.69 | +0.50 | +11.03 | -24.03 13.55 |
| | 31 | 38.1 | 37.68 | -38.03 | +2.71 | +0.53 | +10.90 | -23.89 13.79 |
| | Feb. 13 | 40.5 | 40.04 | -37.33 | +2.79 | +0.51 | + 6.80 | -27.23 12.81 |
| | 14 | 42.5 | 42.02 | -37.28 | +2.79 | +0.51 | + 6.53 | -27.45 14.57 |
| | 16 | 41.5 | 41.03 | -37.17 | +2.80 | +0.50 | + 5.99 | -27.88 13.15 |
| Apr. | 3 | 51.4 | 50.83 | -34.72 | +3.05 | -0.18 | - 6.74 | -38.59 12.24 |
| | 18 | 54.6 | 53.99 | -33.91 | +3.13 | -0.40 | -10.40 | -41.58 12.41 |
| | 29 | 57.6 | 55.97 | -33.32 | +3.19 | -0.51 | -12.66 | -43.30 12.67 |
| | May 19 | 59.0 | 58.34 | -32.23 | +3.29 | -0.50 | -15.57 | -45.01 13.33 |
| June | 18 | 56.8 | 56.17 | -30.69 | +3.45 | -0.11 | -16.64 | -43.99 12.18 |
| | 28 | 56.0 | 55.38 | -30.06 | +3.50 | +0.06 | -16.07 | -42.54 12.84 |
| | July 4 | 56.7 | 56.07 | -29.72 | +3.53 | +0.17 | -15.53 | -41.55 14.52 |
| | 5 | 56.0 | 55.38 | -29.67 | +3.54 | +0.19 | -15.42 | -41.36 14.02 |
| Aug. | 9 | 54.0 | 53.40 | -29.45 | +3.56 | +0.25 | -14.94 | -40.58 12.82 |
| | 16 | 53.4 | 52.81 | -29.07 | +3.59 | +0.34 | -13.97 | -39.11 13.70 |
| | 7 | 48.0 | 47.47 | -27.88 | +3.70 | +0.53 | - 9.73 | -33.38 14.09 |
| | 9 | 46.8 | 46.28 | -27.77 | +3.71 | +0.53 | - 9.24 | -32.77 13.51 |
| Sept. | 11 | 46.5 | 45.98 | -27.66 | +3.72 | +0.52 | - 8.74 | -32.16 13.82 |
| | 24 | 33.0 | 32.63 | -25.27 | +3.94 | +0.05 | + 3.18 | -18.10 14.53 |
| | 29 | 30.0 | 29.67 | -25.00 | +3.96 | -0.04 | + 4.55 | -16.53 13.14 |
| Oct. | 30 | 29.5 | 29.17 | -24.95 | +3.97 | -0.06 | + 4.82 | -16.52 12.65 |
| | 1 | 29.8 | 29.47 | -24.89 | +3.97 | -0.07 | + 5.08 | -15.91 13.56 |
| | 26 | 21.3 | 21.07 | -23.54 | +4.09 | -0.45 | +11.34 | - 8.56 12.51 |
| | 29 | 20.0 | 19.78 | -23.36 | +4.11 | -0.48 | +11.96 | - 7.77 12.01 |
| | Nov. 11 | 17.6 | 17.40 | -22.66 | +4.17 | -0.52 | +14.29 | - 4.72 12.68 |
| Dec. | 28 | 15.0 | 14.83 | -21.74 | +4.25 | -0.44 | +16.24 | - 1.69 13.14 |
| | 3 | 14.0 | 13.84 | -21.47 | +4.27 | -0.38 | +16.54 | - 1.04 12.80 |
| | 4 | 13.0 | 12.86 | -21.42 | +4.27 | -0.37 | +16.59 | - 0.93 11.93 |
| | 10 | 14.5 | 14.33 | -21.09 | +4.30 | -0.27 | +16.75 | - 0.31 14.02 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|----------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| Dec. 11 | 13.5 | 13.35 | — 21.04 | + 4.30 | — 0.25 | + 16.78 | — 0.21 | 13.14 |
| | 13.2 | 13.06 | — 20.99 | + 4.31 | — 0.26 | + 16.75 | — 0.19 | 12.87 |
| | 13.5 | 13.35 | — 20.82 | + 4.33 | — 0.22 | + 16.74 | — 0.03 | 13.38 |
| | 11.8 | 11.67 | — 20.55 | + 4.35 | — 0.10 | + 16.59 | + 0.29 | 11.96 |
| | 12.8 | 12.66 | — 20.44 | + 4.36 | — 0.06 | + 16.49 | + 0.35 | 13.01 |
| | 12.2 | 12.07 | — 20.33 | + 4.37 | — 0.03 | + 16.39 | + 0.40 | 12.47 |
| | 12.3 | 12.17 | — 20.22 | + 4.38 | + 0.01 | + 16.29 | + 0.46 | 12.63 |
| | 12.0 | 11.87 | — 20.17 | + 4.38 | + 0.03 | + 16.24 | + 0.48 | 12.35 |
| | 17.5 | 17.30 | — 17.93 | + 4.57 | + 0.52 | + 9.20 | — 3.64 | 13.66 |
| | 24.3 | 24.03 | — 16.25 | + 4.71 | + 0.27 | + 0.64 | — 10.63 | 13.40 |
| 1729 Feb. 5 | 23.0 | 22.74 | — 16.20 | + 4.71 | + 0.26 | + 0.35 | — 10.88 | 11.86 |
| | 29.5 | 29.17 | — 15.16 | + 4.80 | — 0.08 | — 5.07 | — 15.51 | 13.66 |
| | 31.5 | 31.14 | — 15.11 | + 4.80 | — 0.10 | — 5.34 | — 15.57 | 15.39 |
| | 33.0 | 32.63 | — 13.91 | + 4.89 | — 0.43 | — 10.80 | — 20.25 | 12.38 |
| | 35.7 | 35.30 | — 10.92 | + 5.11 | — 0.19 | — 16.74 | — 22.74 | 12.56 |
| | 36.7 | 36.29 | — 10.87 | + 5.11 | — 0.17 | — 16.73 | — 22.66 | 13.63 |
| | 36.5 | 36.09 | — 10.82 | + 5.12 | — 0.16 | — 16.71 | — 22.57 | 13.52 |
| | 35.6 | 35.20 | — 10.76 | + 5.12 | — 0.15 | — 16.68 | — 22.47 | 12.73 |
| | 36.5 | 36.09 | — 10.71 | + 5.13 | — 0.13 | — 16.65 | — 22.36 | 13.73 |
| | 37.0 | 36.59 | — 10.66 | + 5.13 | — 0.11 | — 16.61 | — 22.25 | 14.34 |
| 1729 Mar. 8 | 35.5 | 35.10 | — 10.49 | + 5.14 | — 0.05 | — 16.48 | — 21.88 | 13.22 |
| | 33.0 | 32.63 | — 9.78 | + 5.19 | + 0.17 | — 15.45 | — 19.87 | 12.76 |
| | 5.5 | 5.43 | — 4.62 | + 5.54 | — 0.20 | + 6.95 | + 7.67 | 13.10 |
| | 1.0 | 0.99 | — 3.65 | + 5.60 | — 0.45 | + 11.28 | + 12.78 | 11.79 |
| | 0.7 | 0.69 | — 3.53 | + 5.61 | — 0.47 | + 11.71 | + 13.32 | 12.63 |
| | 9.0 | 8.90 | — 1.53 | + 5.72 | — 0.37 | + 16.57 | + 20.39 | 11.49 |
| | 8.2 | 8.11 | — 1.25 | + 5.74 | — 0.29 | + 16.73 | + 20.93 | 12.82 |
| | 9.3 | 9.20 | — 1.04 | + 5.75 | — 0.23 | + 16.77 | + 21.25 | 12.05 |
| | 9.5 | 9.39 | — 0.98 | + 5.75 | — 0.21 | + 16.75 | + 21.31 | 11.92 |
| | 8.5 | 8.40 | — 0.87 | + 5.76 | — 0.18 | + 16.73 | + 21.44 | 13.04 |
| 1730 June 18 | 10.8 | 10.68 | — 0.60 | + 5.77 | — 0.10 | + 16.56 | + 21.63 | 10.95 |
| | 10.0 | 9.89 | — 0.55 | + 5.77 | — 0.08 | + 16.51 | + 21.65 | 11.76 |
| | 14.0 | 13.84 | — 9.17 | + 6.25 | + 0.40 | — 16.65 | — 0.83 | 13.01 |
| | 14.0 | 13.84 | — 9.38 | + 6.26 | + 0.45 | — 16.48 | — 0.39 | 13.45 |
| | 13.3 | 13.16 | — 9.83 | + 6.28 | + 0.50 | — 15.95 | + 0.66 | 13.82 |
| | 31.0 | 30.65 | + 19.22 | + 6.56 | — 0.11 | + 16.61 | + 42.28 | 11.63 |
| | 31.5 | 31.14 | + 19.33 | + 6.57 | — 0.07 | + 16.52 | + 42.35 | 11.21 |
| | 32.5 | 32.13 | + 19.38 | + 6.57 | — 0.05 | + 16.47 | + 42.37 | 10.24 |
| | 49.7 | 49.14 | + 40.90 | + 6.62 | + 0.43 | + 12.68 | + 60.63 | 11.49 |
| | 27.5 | 27.19 | + 46.21 | + 6.50 | — 0.49 | — 12.47 | + 39.75 | 12.56 |
| 1733 Jan. 10 | 68.0 | 67.24 | + 60.23 | + 5.88 | + 0.29 | + 14.46 | + 80.86 | 13.62 |
| Feb. 1 | 65.5 | 64.77 | + 61.43 | + 5.81 | + 0.52 | + 10.62 | + 78.38 | 13.61 |
| 1734 June 23 | 63.0 | 62.30 | + 89.01 | + 3.65 | — 0.04 | — 16.45 | + 76.17 | 13.87 |
| Dec. 22 | 63.5 | 62.79 | + 89.07 | + 3.65 | — 0.02 | — 16.39 | + 76.31 | 13.52 |
| 106.6 | 105.41 | + 98.90 | + 2.63 | — 0.07 | + 16.51 | + 117.97 | 12.56 | |
| 1735 Jan. 2 | 106.0 | 104.82 | + 99.55 | + 2.56 | + 0.15 | + 15.55 | + 117.81 | 12.99 |
| 5 | 107.0 | 105.81 | + 99.71 | + 2.54 | + 0.20 | + 15.18 | + 117.63 | 11.82 |
| 1739 Jan. 3 | 128.2 | 176.22 | + 179.16 | — 5.61 | + 0.17 | + 15.43 | + 189.15 | 12.93 |
| 8 | 178.0 | 176.02 | + 179.43 | — 5.63 | + 0.26 | + 14.77 | + 188.83 | 12.81 |
| 1740 June 13 | 171.0 | 169.10 | + 207.85 | — 6.70 | — 0.20 | — 16.62 | + 184.33 | 15.23 |
| 1747 Mar. 10 | 336.0 | 332.26 | + 341.85 | + 3.69 | + 0.26 | + 0.24 | + 346.04 | 13.78 |

TABLE V.—*Reduction of the Wanstead Observations.*

τ PERSEI.

Assuming $P = 38^\circ 20' + 28''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|----------------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Sept. 22 | 62.8 | 62.10 | — 35.50 | + 6.27 | + 0.38 | — 4.52 | — 33.37 28.73 |
| | 27 | 60.8 | 60.12 | — 35.29 | + 6.29 | + 0.32 | — 3.46 | — 32.14 27.98 |
| | Oct. 24 | 53.9 | 53.30 | — 34.14 | + 6.40 | — 0.17 | + 2.55 | — 25.36 27.94 |
| | 31 | 53.6 | 53.00 | — 33.84 | + 6.43 | — 0.28 | + 4.09 | — 23.60 29.40 |
| | Nov. 25 | 45.8 | 45.29 | — 32.77 | + 6.51 | — 0.54 | + 8.96 | — 17.84 27.45 |
| | Dec. 23 | 42.0 | 41.53 | — 31.59 | + 6.61 | — 0.36 | + 12.38 | — 12.96 28.57 |
| | 1728 Jan. 1 | 41.4 | 40.94 | — 31.07 | + 6.65 | — 0.16 | + 12.98 | — 11.60 29.34 |
| | 9 | 40.1 | 39.65 | — 30.72 | + 6.68 | 0.00 | + 13.03 | — 11.01 28.64 |
| | 14 | 41.6 | 41.13 | — 30.57 | + 6.69 | + 0.09 | + 12.94 | — 10.85 30.28 |
| | 27 | 40.2 | 39.75 | — 29.96 | + 6.73 | + 0.32 | + 12.24 | — 10.67 29.08 |
| 1728 | Feb. 13 | 41.0 | 40.54 | — 29.24 | + 6.79 | + 0.51 | + 10.35 | — 11.59 28.95 |
| | 14 | 42.0 | 41.53 | — 29.20 | + 6.79 | + 0.52 | + 10.21 | — 11.68 29.85 |
| | 15 | 39.8 | 39.36 | — 29.15 | + 6.79 | + 0.52 | + 10.07 | — 11.77 27.59 |
| | 16 | 42.4 | 41.93 | — 29.11 | + 6.80 | + 0.53 | + 9.92 | — 11.86 30.07 |
| | Aug. 9 | 55.7 | 55.08 | — 21.75 | + 7.24 | + 0.43 | — 11.53 | — 25.61 29.47 |
| | 14 | 52.0 | 51.42 | — 21.54 | + 7.25 | + 0.48 | — 10.98 | — 24.79 26.63 |
| | 18 | 54.5 | 53.89 | — 21.36 | + 7.26 | + 0.51 | — 10.48 | — 24.07 29.82 |
| | 24 | 52.7 | 52.11 | — 21.11 | + 7.27 | + 0.54 | — 9.65 | — 22.95 29.16 |
| | 30 | 52.0 | 51.42 | — 20.86 | + 7.28 | + 0.55 | — 8.71 | — 21.74 29.68 |
| | Oct. 29 | 35.0 | 34.61 | — 18.30 | + 7.39 | — 0.27 | + 3.82 | — 7.36 27.25 |
| 1729 | Nov. 11 | 32.5 | 32.13 | — 17.75 | + 7.41 | — 0.45 | + 6.53 | — 4.26 27.87 |
| | 30 | 28.0 | 27.69 | — 16.94 | + 7.43 | — 0.54 | + 9.88 | — 0.17 27.52 |
| | Dec. 3 | 27.5 | 27.19 | — 16.81 | + 7.44 | — 0.54 | + 10.31 | + 0.40 27.59 |
| | 4 | 27.5 | 27.19 | — 16.77 | + 7.44 | — 0.53 | + 10.45 | + 0.59 27.78 |
| | 12 | 26.5 | 26.20 | — 16.43 | + 7.45 | — 0.48 | + 11.45 | + 1.99 28.19 |
| | 22 | 23.5 | 23.23 | — 16.01 | + 7.46 | — 0.36 | + 12.36 | + 3.45 26.68 |
| | 1729 Jan. 1 | 22.5 | 22.24 | — 15.54 | + 7.48 | — 0.18 | + 12.93 | + 4.69 26.93 |
| | 14 | 21.6 | 21.36 | — 14.98 | + 7.49 | + 0.07 | + 12.98 | + 5.56 26.92 |
| | 25 | 22.5 | 22.24 | — 14.52 | + 7.51 | + 0.22 | + 12.47 | + 5.68 27.92 |
| | Feb. 5 | 22.5 | 22.24 | — 14.05 | + 7.52 | + 0.43 | + 11.50 | + 5.40 27.64 |
| 1730 | 12 | 23.8 | 23.53 | — 13.76 | + 7.52 | + 0.50 | + 10.65 | + 4.91 28.44 |
| | Aug. 26 | 35.5 | 35.10 | — 5.45 | + 7.58 | + 0.54 | — 9.39 | — 6.72 28.38 |
| | 31 | 34.0 | 33.62 | — 5.25 | + 7.58 | + 0.54 | — 8.59 | — 5.72 27.90 |
| | Sept. 1 | 36.0 | 35.60 | — 5.20 | + 7.58 | + 0.54 | — 8.43 | — 5.51 30.09 |
| | Dec. 9 | 10.0 | 9.89 | — 0.99 | + 7.52 | — 0.51 | + 11.07 | + 17.09 26.98 |
| | 13 | 9.2 | 9.10 | — 0.81 | + 7.51 | — 0.47 | + 11.52 | + 17.75 26.85 |
| | 14 | 8.7 | 8.60 | — 0.77 | + 7.51 | — 0.46 | + 11.63 | + 17.91 26.51 |
| | 21 | 9.0 | 8.90 | — 0.48 | + 7.50 | — 0.38 | + 12.27 | + 18.91 27.81 |
| | Feb. 11 | 8.0 | 7.91 | + 1.78 | + 7.44 | + 0.49 | + 10.82 | + 20.53 28.44 |
| | 1731 Jan. 4 | 7.0 | 6.92 | + 15.75 | + 6.67 | — 0.13 | + 13.01 | + 35.30 28.38 |
| 1732 | 14 | 8.2 | 8.11 | + 16.18 | + 6.63 | + 0.06 | + 12.99 | + 35.86 27.75 |
| | 29 | 8.2 | 8.11 | + 16.81 | + 6.57 | + 0.33 | + 12.21 | + 35.92 27.81 |
| | Jan. 6 | 22.5 | 22.24 | + 31.49 | + 5.20 | — 0.06 | + 13.06 | + 49.69 27.45 |
| | 19 | 22.3 | 22.04 | + 32.04 | + 5.12 | + 0.19 | + 12.75 | + 50.10 28.06 |
| | 20 | 21.5 | 21.26 | + 32.08 | + 5.11 | + 0.21 | + 12.70 | + 50.10 28.84 |
| 1733 Feb. 1 | 35.0 | 34.61 | + 48.13 | + 2.72 | + 0.39 | + 11.90 | + 63.14 28.53 | |
| 1739 Jan. 2 | 119.7 | 118.36 | + 140.34 | — 7.71 | — 0.17 | + 12.95 | + 145.41 27.05 | |
| 3 | 118.5 | 117.18 | + 140.39 | — 7.71 | — 0.15 | + 12.98 | + 145.51 28.33 | |
| 4 | 118.0 | 116.69 | + 140.43 | — 7.71 | — 0.13 | + 13.00 | + 145.59 28.90 | |
| 1740 Feb. 2 | 134.0 | 132.51 | + 157.33 | — 6.93 | + 0.41 | + 11.69 | + 162.50 29.99 | |

TABLE III.—*Solar Nutation.*

| | λ Cassiopeia | α Cassiopeia | τ Persel | α Persel | γ Persel | δ Persel | 9 Aurigæ | α Aurigæ | 18 Camelop. | δ Aurigæ | 35 Camelop. | |
|--------|----------------------|---------------------|---------------|-----------------|-----------------|-----------------|----------|-----------------|-------------|-----------------|-------------|--------|
| Jan. | +0.142 | +0.122 | -0.199 | -0.267 | -0.223 | -0.308 | -0.458 | -0.474 | -0.492 | -0.524 | -0.529 | |
| | +0.311 | +0.294 | -0.008 | -0.080 | -0.033 | -0.125 | -0.308 | -0.331 | -0.356 | -0.405 | -0.414 | |
| | +0.442 | +0.431 | +0.184 | +0.116 | +0.162 | +0.072 | -0.121 | -0.147 | -0.175 | -0.236 | -0.249 | |
| | +0.517 | +0.512 | +0.352 | +0.298 | +0.335 | +0.261 | +0.082 | +0.056 | +0.027 | -0.038 | -0.051 | |
| Feb. 9 | +0.529 | +0.532 | +0.478 | +0.443 | +0.467 | +0.417 | +0.273 | +0.251 | +0.224 | +0.164 | +0.152 | |
| 19 | +0.476 | +0.485 | +0.543 | +0.532 | +0.540 | +0.520 | +0.431 | +0.414 | +0.393 | +0.345 | +0.335 | |
| Mar. | +0.365 | +0.380 | +0.543 | +0.558 | +0.548 | +0.561 | +0.536 | +0.527 | +0.515 | +0.484 | +0.477 | |
| | +0.211 | +0.231 | +0.478 | +0.515 | +0.491 | +0.535 | +0.575 | +0.575 | +0.573 | +0.564 | +0.561 | |
| | +0.033 | +0.054 | +0.356 | +0.412 | +0.375 | +0.445 | +0.547 | +0.555 | +0.564 | +0.576 | +0.577 | |
| | -0.148 | -0.128 | +0.192 | +0.261 | +0.216 | +0.302 | +0.454 | +0.471 | +0.488 | +0.521 | +0.527 | |
| Apr. | -0.311 | -0.294 | +0.008 | +0.082 | +0.033 | +0.126 | +0.309 | +0.331 | +0.356 | +0.406 | +0.416 | |
| | -0.437 | -0.425 | -0.176 | -0.107 | -0.152 | -0.064 | +0.129 | +0.155 | +0.183 | +0.245 | +0.257 | |
| | -0.513 | -0.508 | -0.339 | -0.283 | -0.320 | -0.245 | -0.064 | -0.038 | -0.008 | +0.056 | +0.069 | |
| | -0.531 | -0.533 | -0.464 | -0.426 | -0.452 | -0.398 | -0.249 | -0.226 | -0.199 | -0.138 | -0.125 | |
| May 20 | -0.490 | -0.498 | -0.536 | -0.521 | -0.532 | -0.507 | -0.401 | -0.388 | -0.366 | -0.316 | -0.304 | |
| 30 | -0.395 | -0.409 | -0.549 | -0.557 | -0.553 | -0.558 | -0.517 | -0.506 | -0.493 | -0.457 | -0.449 | |
| June | -0.256 | -0.275 | -0.501 | -0.533 | -0.513 | -0.548 | -0.571 | -0.569 | -0.565 | -0.549 | -0.544 | |
| | -0.090 | -0.111 | -0.398 | -0.450 | -0.417 | -0.478 | -0.563 | -0.569 | -0.574 | -0.580 | -0.579 | |
| | +0.086 | +0.066 | -0.253 | -0.318 | -0.276 | -0.356 | -0.493 | -0.507 | -0.521 | -0.547 | -0.552 | |
| | +0.253 | +0.234 | -0.079 | -0.152 | -0.105 | -0.195 | -0.369 | -0.389 | -0.412 | -0.455 | -0.464 | |
| July | 19 | +0.391 | +0.377 | +0.103 | +0.032 | +0.079 | -0.013 | -0.204 | -0.230 | -0.257 | -0.314 | -0.325 |
| | 29 | +0.488 | +0.479 | +0.274 | +0.212 | +0.254 | +0.171 | -0.017 | -0.044 | -0.074 | -0.137 | -0.151 |
| | 8 | +0.531 | +0.529 | +0.416 | +0.369 | +0.411 | +0.336 | +0.172 | +0.147 | +0.118 | +0.055 | +0.041 |
| | 18 | +0.515 | +0.520 | +0.512 | +0.486 | +0.504 | +0.465 | +0.342 | +0.322 | +0.298 | +0.241 | +0.229 |
| 28 | +0.442 | +0.453 | +0.551 | +0.549 | +0.551 | +0.543 | +0.476 | +0.461 | +0.444 | +0.401 | +0.392 | |
| Sept. | 7 | +0.319 | +0.335 | +0.528 | +0.551 | +0.537 | +0.560 | +0.556 | +0.550 | +0.542 | +0.517 | +0.511 |
| | 17 | +0.158 | +0.178 | +0.445 | +0.489 | +0.461 | +0.513 | +0.574 | +0.577 | +0.578 | +0.575 | +0.574 |
| | 27 | -0.021 | 0.000 | +0.311 | +0.371 | +0.333 | +0.406 | +0.525 | +0.536 | +0.548 | +0.567 | +0.569 |
| | Oct. 7 | -0.199 | -0.180 | +0.139 | +0.210 | +0.164 | +0.253 | +0.416 | +0.434 | +0.454 | +0.492 | +0.499 |
| 17 | -0.354 | -0.339 | -0.049 | +0.023 | -0.025 | +0.068 | +0.256 | +0.280 | +0.306 | +0.360 | +0.371 | |
| 27 | -0.469 | -0.458 | -0.234 | -0.168 | -0.212 | -0.126 | +0.066 | +0.091 | +0.121 | +0.184 | +0.197 | |
| Nov. 6 | -0.527 | -0.524 | -0.391 | -0.340 | -0.374 | -0.305 | -0.133 | -0.109 | -0.079 | -0.015 | -0.002 | |
| 16 | -0.521 | -0.525 | -0.501 | -0.471 | -0.491 | -0.449 | -0.318 | -0.297 | -0.272 | -0.213 | -0.201 | |
| 26 | -0.452 | -0.463 | -0.550 | -0.545 | -0.549 | -0.537 | -0.464 | -0.449 | -0.430 | -0.386 | -0.377 | |
| Dec. 6 | -0.326 | -0.344 | -0.531 | -0.552 | -0.540 | -0.560 | -0.553 | -0.546 | -0.538 | -0.512 | -0.506 | |
| 16 | -0.160 | -0.181 | -0.447 | -0.491 | -0.463 | -0.514 | -0.574 | -0.576 | -0.578 | -0.575 | -0.573 | |
| 26 | +0.026 | +0.004 | -0.307 | -0.368 | -0.328 | -0.404 | -0.523 | -0.535 | -0.546 | -0.565 | -0.569 | |
| 36 | +0.209 | +0.189 | -0.129 | -0.200 | -0.153 | -0.243 | -0.408 | -0.427 | -0.447 | -0.486 | -0.494 | |

TABLE III.—*Solar Nutation.*

| | 46 Aurigae | δ Ursae maj. | ψ Ursae maj. | γ Ursae maj. | ϵ Ursae maj. | ζ Ursae maj. | η Ursae maj. | δ Draconis | ϵ Herculis | ζ Draconis | γ Draconis | δ Cassiopeiae |
|---------|------------|---------------------|-------------------|---------------------|-----------------------|--------------------|-------------------|-------------------|---------------------|------------------|-------------------|----------------------|
| Jan. 0 | -0.548 | -0.348 | -0.330 | -0.231 | -0.081 | -0.003 | +0.056 | +0.510 | +0.519 | +0.535 | +0.536 | +0.195 |
| 10 | -0.447 | -0.468 | -0.456 | -0.384 | -0.259 | -0.189 | -0.134 | +0.383 | +0.396 | +0.424 | +0.426 | +0.355 |
| 20 | -0.291 | -0.531 | -0.525 | -0.487 | -0.405 | -0.352 | -0.308 | +0.208 | +0.224 | +0.260 | +0.263 | +0.470 |
| 30 | -0.100 | -0.527 | -0.530 | -0.531 | -0.500 | -0.471 | -0.442 | +0.008 | +0.026 | +0.064 | +0.069 | +0.528 |
| Feb. 9 | +0.104 | -0.459 | -0.469 | -0.510 | -0.534 | -0.531 | -0.522 | -0.193 | -0.176 | -0.138 | -0.135 | +0.520 |
| 19 | +0.294 | -0.334 | -0.351 | -0.426 | -0.502 | -0.527 | -0.539 | -0.368 | -0.355 | -0.323 | -0.320 | +0.447 |
| Mar. 1 | +0.447 | -0.170 | -0.191 | -0.290 | -0.410 | -0.458 | -0.489 | -0.499 | -0.491 | -0.469 | -0.467 | +0.322 |
| 11 | +0.546 | +0.014 | -0.009 | -0.121 | -0.268 | -0.335 | -0.381 | -0.569 | -0.566 | -0.557 | -0.556 | +0.159 |
| 21 | +0.580 | +0.196 | +0.174 | +0.062 | -0.096 | -0.172 | -0.229 | -0.571 | -0.575 | -0.579 | -0.580 | -0.023 |
| 31 | +0.545 | +0.353 | +0.334 | +0.237 | +0.087 | +0.008 | -0.050 | -0.507 | -0.515 | -0.533 | -0.534 | -0.201 |
| Apr. 10 | +0.448 | +0.468 | +0.456 | +0.383 | +0.258 | +0.188 | +0.133 | -0.384 | -0.397 | -0.424 | -0.427 | -0.355 |
| 20 | +0.299 | +0.529 | +0.523 | +0.484 | +0.400 | +0.345 | +0.300 | -0.217 | -0.233 | -0.269 | -0.272 | -0.466 |
| 30 | +0.117 | +0.530 | +0.532 | +0.531 | +0.494 | +0.462 | +0.433 | -0.026 | -0.044 | -0.083 | -0.086 | -0.525 |
| May 10 | -0.077 | +0.471 | +0.481 | +0.516 | +0.533 | +0.527 | +0.515 | +0.167 | +0.150 | +0.112 | +0.108 | -0.524 |
| 20 | -0.262 | +0.360 | +0.376 | +0.445 | +0.512 | +0.533 | +0.541 | +0.340 | +0.326 | +0.293 | +0.290 | -0.465 |
| 30 | -0.416 | +0.209 | +0.229 | +0.325 | +0.435 | +0.479 | +0.506 | +0.474 | +0.465 | +0.441 | +0.438 | -0.355 |
| June 9 | -0.526 | +0.036 | +0.058 | +0.169 | +0.311 | +0.373 | +0.415 | +0.557 | +0.553 | +0.540 | +0.538 | -0.205 |
| 19 | -0.577 | -0.141 | -0.118 | -0.005 | +0.151 | +0.226 | +0.280 | +0.578 | +0.580 | +0.579 | +0.579 | -0.034 |
| 29 | -0.565 | -0.302 | -0.282 | -0.178 | -0.023 | +0.055 | +0.114 | +0.536 | +0.543 | +0.556 | +0.558 | +0.140 |
| July 9 | -0.492 | -0.430 | -0.416 | -0.333 | -0.196 | -0.122 | -0.064 | +0.436 | +0.447 | +0.472 | +0.474 | +0.301 |
| 19 | -0.364 | -0.511 | -0.503 | -0.450 | -0.347 | -0.286 | -0.236 | +0.288 | +0.303 | +0.337 | +0.339 | +0.427 |
| 29 | -0.194 | -0.537 | -0.536 | -0.518 | -0.461 | -0.419 | -0.382 | +0.108 | +0.125 | +0.164 | +0.167 | +0.507 |
| Aug. 8 | -0.007 | -0.503 | -0.509 | -0.530 | -0.523 | -0.506 | -0.486 | -0.084 | -0.067 | -0.028 | -0.024 | +0.532 |
| 18 | +0.183 | -0.414 | -0.428 | -0.483 | -0.529 | -0.537 | -0.537 | -0.268 | -0.253 | -0.216 | -0.213 | +0.498 |
| 28 | +0.355 | -0.278 | -0.297 | -0.382 | -0.475 | -0.509 | -0.528 | -0.422 | -0.410 | -0.382 | -0.380 | +0.408 |
| Sept. 7 | +0.487 | -0.110 | -0.132 | -0.237 | -0.368 | -0.423 | -0.460 | -0.530 | -0.523 | -0.505 | -0.503 | +0.271 |
| 17 | +0.564 | +0.071 | +0.049 | -0.065 | -0.217 | -0.288 | -0.338 | -0.573 | -0.576 | -0.572 | -0.571 | +0.104 |
| 27 | +0.577 | +0.245 | +0.225 | +0.116 | -0.042 | -0.120 | -0.177 | -0.559 | -0.564 | -0.572 | -0.572 | -0.077 |
| Oct. 7 | +0.523 | +0.392 | +0.376 | +0.284 | +0.140 | +0.064 | +0.005 | -0.475 | -0.486 | -0.506 | -0.508 | -0.249 |
| 17 | +0.407 | +0.493 | +0.483 | +0.420 | +0.306 | +0.230 | +0.188 | -0.335 | -0.350 | -0.381 | -0.384 | -0.394 |
| 27 | +0.242 | +0.537 | +0.533 | +0.506 | +0.436 | +0.390 | +0.348 | -0.155 | -0.171 | -0.209 | -0.212 | -0.492 |
| Nov. 6 | +0.046 | +0.515 | +0.520 | +0.532 | +0.515 | +0.492 | +0.469 | +0.045 | +0.028 | -0.011 | -0.015 | -0.532 |
| 16 | -0.155 | +0.432 | +0.444 | +0.493 | +0.532 | +0.536 | +0.533 | +0.241 | +0.226 | +0.189 | +0.186 | -0.506 |
| 26 | -0.338 | +0.294 | +0.302 | +0.395 | +0.483 | +0.515 | +0.532 | +0.408 | +0.395 | +0.366 | +0.363 | -0.419 |
| Dec. 6 | -0.480 | +0.121 | +0.142 | +0.247 | +0.375 | +0.430 | +0.465 | +0.525 | +0.518 | +0.499 | +0.497 | -0.280 |
| 16 | -0.563 | -0.068 | -0.046 | +0.067 | +0.220 | +0.291 | +0.340 | +0.577 | +0.576 | +0.571 | +0.570 | -0.107 |
| 26 | -0.576 | -0.249 | -0.229 | -0.121 | +0.037 | +0.116 | +0.173 | +0.557 | +0.563 | +0.572 | +0.572 | +0.082 |
| 36 | -0.517 | -0.399 | -0.383 | -0.293 | -0.150 | -0.074 | -0.015 | +0.469 | +0.497 | +0.501 | +0.503 | +0.259 |

TABLE IV.—*Aberration.*

| | λ Cassiopeia | | | α Cassiopeia | | | τ Persei | | | α Persei | | | γ Persei | | | |
|-------|--------------|----------|----------------------|--------------|----------|----------------------|----------|----------|----------------------|----------|----------|----------------------|----------|----------|----------------------|------|
| | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | |
| | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | 1730 | |
| Jan. | 0 | + 15.234 | - 122 | + 17 | + 15.734 | - 114 | + 14 | + 12.903 | + 39 | - 16 | + 11.219 | + 53 | - 22 | + 12.702 | + 45 | - 17 |
| | 10 | + 13.846 | - 160 | + 24 | + 14.467 | - 149 | + 22 | + 13.037 | - 7 | - 8 | + 11.556 | + 16 | - 16 | + 12.965 | + 6 | - 7 |
| | 20 | + 12.026 | - 201 | + 30 | + 12.750 | - 191 | + 28 | + 12.762 | - 47 | + 1 | + 11.530 | - 21 | - 8 | + 12.822 | - 34 | + 3 |
| | 30 | + 9.835 | - 234 | + 35 | + 10.638 | - 227 | + 33 | + 12.090 | - 86 | + 10 | + 11.145 | - 56 | - 2 | + 12.278 | - 73 | + 13 |
| Feb. | 9 | + 7.345 | - 260 | + 38 | + 8.902 | - 256 | + 37 | + 11.044 | - 121 | + 18 | + 10.412 | - 89 | + 7 | + 11.356 | - 110 | + 24 |
| | 19 | + 4.638 | - 277 | + 41 | + 5.522 | - 276 | + 40 | + 9.662 | - 153 | + 25 | + 9.366 | - 119 | + 13 | + 10.087 | - 142 | + 33 |
| | Mar. 1 | + 1.803 | - 286 | + 42 | + 2.687 | - 287 | + 42 | + 7.992 | - 179 | + 32 | + 8.036 | - 145 | + 21 | + 8.516 | - 170 | + 40 |
| | 11 | - 1.073 | - 285 | + 42 | - 0.215 | - 289 | + 42 | + 6.088 | - 199 | + 37 | + 6.471 | - 166 | + 26 | + 6.696 | - 192 | + 46 |
| | 21 | - 3.902 | - 276 | + 41 | - 3.095 | - 283 | + 41 | + 4.013 | - 213 | + 41 | + 4.720 | - 182 | + 31 | + 4.684 | - 202 | + 52 |
| Apr. | 31 | - 6.599 | - 259 | + 39 | - 5.868 | - 268 | + 39 | + 1.831 | - 220 | + 44 | + 2.839 | - 192 | + 35 | + 2.547 | - 217 | + 53 |
| | 10 | - 9.087 | - 235 | + 35 | - 8.453 | - 246 | + 36 | - 0.392 | - 221 | + 46 | + 0.887 | - 196 | + 38 | + 0.347 | - 220 | + 55 |
| | 20 | - 11.299 | - 205 | + 30 | - 10.778 | - 217 | + 31 | - 2.592 | - 216 | + 46 | - 1.081 | - 195 | + 40 | - 1.852 | - 217 | + 57 |
| | 30 | - 13.177 | - 169 | + 25 | - 12.784 | - 182 | + 26 | - 4.706 | - 204 | + 45 | - 3.007 | - 188 | + 41 | - 3.985 | - 207 | + 55 |
| | May 10 | - 14.672 | - 129 | + 19 | - 14.419 | - 143 | + 21 | - 6.676 | - 188 | + 43 | - 4.840 | - 176 | + 41 | - 5.996 | - 192 | + 53 |
| May | 20 | - 15.750 | - 86 | + 13 | - 15.642 | - 100 | + 15 | - 8.456 | - 165 | + 42 | - 6.528 | - 159 | + 39 | - 7.829 | - 172 | + 46 |
| | 30 | - 16.384 | - 41 | + 6 | - 16.424 | - 55 | + 8 | - 9.984 | - 139 | + 35 | - 8.028 | - 139 | + 37 | - 9.438 | - 148 | + 43 |
| | June 9 | - 16.564 | + 5 | 0 | - 16.751 | - 10 | + 2 | - 11.237 | - 110 | + 30 | - 9.301 | - 115 | + 33 | - 10.781 | - 119 | + 33 |
| | 19 | - 16.286 | + 50 | - 8 | - 16.614 | + 36 | - 5 | - 12.177 | - 77 | + 24 | - 10.318 | - 87 | + 29 | - 11.825 | - 88 | + 28 |
| | 29 | - 15.562 | + 94 | - 14 | - 16.022 | + 81 | - 11 | - 12.782 | - 43 | + 18 | - 11.048 | - 58 | + 24 | - 12.543 | - 55 | + 20 |
| July | 9 | - 14.410 | + 135 | - 20 | - 14.988 | + 124 | - 18 | - 13.035 | - 7 | + 10 | - 11.474 | - 27 | + 17 | - 12.916 | - 20 | + 11 |
| | 19 | - 12.861 | + 173 | - 25 | - 13.543 | + 163 | - 23 | - 12.931 | + 28 | + 3 | - 11.587 | + 5 | + 12 | - 12.934 | + 16 | + 9 |
| | 29 | - 10.954 | + 206 | - 30 | - 11.721 | + 199 | - 28 | - 12.472 | + 64 | - 3 | - 11.379 | + 37 | + 5 | - 12.594 | + 51 | - 9 |
| | Aug. 8 | - 8.739 | + 234 | - 34 | - 9.570 | + 229 | - 32 | - 11.660 | + 97 | - 12 | - 10.855 | + 68 | - 2 | - 11.906 | + 86 | - 17 |
| | 18 | - 6.273 | + 256 | - 37 | - 7.145 | + 253 | - 35 | - 10.524 | + 129 | - 20 | - 10.027 | + 97 | - 8 | - 10.883 | + 113 | - 26 |
| Sept. | 28 | - 3.620 | + 271 | - 40 | - 4.507 | + 271 | - 39 | - 9.088 | + 157 | - 26 | - 8.914 | + 124 | - 15 | - 9.550 | + 147 | - 34 |
| | 7 | - 0.852 | + 279 | - 41 | - 1.731 | + 281 | - 40 | - 7.386 | + 184 | - 32 | - 7.543 | + 148 | - 21 | - 7.939 | + 173 | - 42 |
| | 17 | + 1.955 | + 279 | - 41 | + 1.109 | + 283 | - 40 | - 5.469 | + 201 | - 35 | - 5.948 | + 169 | - 27 | - 6.093 | + 194 | - 47 |
| | 27 | + 4.720 | + 270 | - 40 | + 3.934 | + 277 | - 40 | - 3.374 | + 215 | - 41 | - 4.172 | + 184 | - 32 | - 4.061 | + 210 | - 52 |
| | Oct. 7 | + 7.364 | + 254 | - 38 | + 6.658 | + 263 | - 38 | - 1.172 | + 223 | - 45 | - 2.264 | + 195 | - 36 | - 1.897 | + 220 | - 55 |
| Oct. | 17 | + 9.802 | + 230 | - 34 | + 9.202 | + 241 | - 35 | + 1.077 | + 224 | - 47 | - 0.278 | + 200 | - 39 | + 0.335 | + 223 | - 57 |
| | 27 | + 11.962 | + 198 | - 29 | + 11.483 | + 211 | - 31 | + 3.306 | + 218 | - 47 | + 1.728 | + 198 | - 41 | + 2.570 | + 220 | - 57 |
| | Nov. 6 | + 13.770 | + 160 | - 24 | + 13.428 | + 174 | - 26 | + 5.446 | + 206 | - 46 | + 3.691 | + 196 | - 42 | + 4.738 | + 210 | - 56 |
| | 16 | + 15.166 | + 117 | - 18 | + 14.972 | + 132 | - 20 | + 7.431 | + 187 | - 44 | + 5.551 | + 178 | - 41 | + 6.771 | + 193 | - 52 |
| | 26 | + 16.100 | + 68 | - 11 | + 16.060 | + 84 | - 13 | + 9.192 | + 162 | - 39 | + 7.247 | + 159 | - 39 | + 8.604 | + 170 | - 47 |
| Dec. | 6 | + 16.535 | + 18 | - 3 | + 16.653 | + 33 | - 6 | + 10.676 | + 132 | - 34 | + 8.723 | + 134 | - 36 | + 10.175 | + 141 | - 40 |
| | 16 | + 16.456 | - 34 | + 5 | + 16.727 | - 19 | + 2 | + 11.829 | + 95 | - 26 | + 9.932 | + 105 | - 32 | + 11.433 | + 108 | - 32 |
| | 26 | + 15.860 | - 84 | + 13 | + 16.277 | - 76 | + 9 | + 12.572 | + 57 | - 21 | + 10.829 | + 74 | - 26 | + 12.334 | + 76 | - 23 |
| | 36 | + 14.767 | - 133 | + 19 | + 15.314 | - 138 | + 17 | + 12.976 | + 18 | - 13 | + 11.389 | + 42 | - 21 | + 12.848 | + 45 | - 14 |

CONTINUATION OF TABLE IV.—*Aberration.*

| δ Persei | | | 9 Aurigæ | | | α Aurigæ | | | 18 Camelop. | | | δ Aurigæ | | | 35 Camelop. | | |
|----------|----------|----------------------|------------|------------|----------------------|------------|------------|----------------------|-------------|------------|----------------------|------------|------------|----------------------|-------------|------|----------------------|
| | 1730 | Variation in 10 yrs. | | 1730 | Variation in 10 yrs. | | 1730 | Variation in 10 yrs. | | 1730 | Variation in 10 yrs. | | 1730 | Variation in 10 yrs. | | 1730 | Variation in 10 yrs. |
| Jan. | 0 | + 10.048 | + 58 - 25 | + 6.471 | + 137 - 46 | + 5.138 | + 115 - 42 | + 5.544 | + 179 - 48 | + 3.396 | + 172 - 59 | + 2.809 | + 158 - 54 | | | | |
| 10 | + 10.476 | + 26 - 18 | + 7.720 | + 113 - 40 | + 6.181 | + 95 - 38 | + 7.223 | + 156 - 44 | + 5.081 | + 160 - 56 | + 4.375 | + 150 - 49 | | | | | |
| 20 | + 10.576 | - 7 - 11 | + 8.727 | + 87 - 34 | + 7.030 | + 74 - 33 | + 8.672 | + 131 - 38 | + 6.604 | + 142 - 51 | + 5.803 | + 134 - 43 | | | | | |
| 30 | + 10.344 | - 39 - 3 | + 9.458 | + 58 - 25 | + 7.658 | + 52 - 27 | + 9.848 | + 104 - 32 | + 7.918 | + 119 - 45 | + 7.047 | + 113 - 36 | | | | | |
| Feb. | 9 | + 9.793 | - 70 + 5 | + 9.894 | + 28 - 16 | + 8.046 | + 26 - 20 | + 10.714 | + 70 - 24 | + 8.982 | + 92 - 38 | + 8.068 | + 90 - 27 | | | | |
| 19 | + 8.941 | - 98 + 13 | + 10.024 | - 2 - 7 | + 8.184 | + 1 - 13 | + 11.248 | + 36 - 16 | + 9.766 | + 63 - 29 | + 8.837 | + 63 - 18 | | | | | |
| Mar. | 1 | + 7.821 | - 124 + 20 | + 9.846 | - 33 + 3 | + 8.072 | - 23 - 5 | + 11.436 | + 1 - 8 | + 10.247 | + 33 - 19 | + 9.333 | + 35 - 9 | | | | |
| 11 | + 6.470 | - 144 + 26 | + 9.372 | - 61 + 13 | + 7.717 | - 47 + 3 | + 11.276 | - 33 + 2 | + 10.417 | 0 - 10 | + 9.543 | + 7 + 2 | | | | | |
| 21 | + 4.934 | - 161 + 31 | + 8.621 | - 88 + 21 | + 7.132 | - 69 + 11 | + 10.780 | - 65 + 11 | + 10.273 | - 30 + 1 | + 9.468 | - 22 + 11 | | | | | |
| 31 | + 3.260 | - 172 + 36 | + 7.618 | - 111 + 29 | + 6.341 | - 88 + 18 | + 9.969 | - 96 + 19 | + 9.827 | - 59 + 11 | + 9.113 | - 49 + 20 | | | | | |
| Apr. | 10 | + 1.500 | - 178 + 39 | + 6.399 | - 131 + 37 | + 5.367 | - 105 + 25 | + 8.870 | - 122 + 27 | + 9.097 | - 86 + 20 | + 8.493 | - 74 + 28 | | | | |
| 20 | - 0.294 | - 178 + 41 | + 5.002 | - 147 + 42 | + 4.244 | - 118 + 31 | + 7.592 | - 145 + 33 | + 8.107 | - 110 + 29 | + 7.631 | - 97 + 36 | | | | | |
| 30 | - 2.069 | - 174 + 42 | + 3.468 | - 158 + 47 | + 3.007 | - 128 + 36 | + 5.965 | - 164 + 39 | + 6.891 | - 131 + 37 | + 6.556 | - 117 + 43 | | | | | |
| May | 10 | - 3.779 | - 165 + 43 | + 1.844 | - 165 + 51 | + 1.690 | - 134 + 39 | + 4.247 | - 177 + 44 | + 5.486 | - 148 + 44 | + 5.301 | - 133 + 47 | | | | |
| 20 | - 5.373 | - 152 + 41 | + 0.176 | - 167 + 52 | + 0.331 | - 136 + 42 | + 2.417 | - 186 + 47 | + 3.933 | - 161 + 49 | + 3.902 | - 145 + 51 | | | | | |
| 30 | - 6.814 | - 134 + 39 | - 1.492 | - 164 + 53 | - 1.032 | - 135 + 44 | + 0.527 | - 190 + 49 | + 2.274 | - 169 + 54 | + 2.398 | - 153 + 54 | | | | | |
| June | 9 | - 8.061 | - 114 + 35 | - 3.113 | - 157 + 52 | - 2.363 | - 130 + 44 | - 1.373 | - 188 + 50 | + 0.560 | - 172 + 56 | + 0.834 | - 157 + 55 | | | | |
| 19 | - 9.084 | - 90 + 31 | - 4.646 | - 147 + 49 | - 3.626 | - 121 + 43 | - 3.232 | - 181 + 49 | - 1.169 | - 171 + 58 | - 0.750 | - 157 + 59 | | | | | |
| 29 | - 9.856 | - 63 + 26 | - 6.050 | - 132 + 46 | - 4.788 | - 110 + 41 | - 4.999 | - 170 + 47 | - 2.862 | - 165 + 57 | - 2.314 | - 153 + 52 | | | | | |
| July | 9 | - 10.352 | - 36 + 20 | - 7.287 | - 114 + 41 | - 5.818 | - 95 + 38 | - 6.629 | - 154 + 44 | - 4.477 | - 155 + 55 | - 3.812 | - 145 + 49 | | | | |
| 19 | - 10.573 | - 7 + 13 | - 8.325 | - 92 + 35 | - 6.690 | - 78 + 34 | - 8.078 | - 134 + 40 | - 5.970 | - 141 + 52 | - 5.207 | - 133 + 44 | | | | | |
| 29 | - 10.499 | + 22 + 7 | - 9.135 | - 68 + 29 | - 7.378 | - 59 + 29 | - 9.307 | - 110 + 34 | - 7.301 | - 123 + 47 | - 6.462 | - 117 + 38 | | | | | |
| Aug. | 8 | - 10.133 | + 51 0 | - 9.693 | - 42 + 20 | - 7.864 | - 38 + 24 | - 10.280 | - 83 + 27 | - 8.433 | - 102 + 41 | - 7.540 | - 97 + 31 | | | | |
| 18 | - 9.484 | + 78 - 7 | - 9.983 | - 15 + 12 | - 8.131 | - 15 + 17 | - 10.971 | - 54 + 20 | - 9.334 | - 77 + 34 | - 8.411 | - 75 + 23 | | | | | |
| 28 | - 8.565 | + 104 - 14 | - 9.994 | + 14 + 3 | - 8.172 | + 8 + 10 | - 11.356 | - 22 + 12 | - 9.976 | - 50 + 25 | - 9.049 | - 51 + 14 | | | | | |
| Sept. | 7 | - 7.399 | + 128 - 21 | - 9.722 | + 41 - 6 | - 7.981 | + 31 + 2 | - 11.420 | + 10 + 4 | - 10.338 | - 22 + 16 | - 9.434 | - 25 + 5 | | | | |
| 17 | - 6.015 | + 148 - 26 | - 9.169 | + 69 - 15 | - 7.560 | + 53 - 5 | - 11.158 | + 42 - 5 | - 10.406 | + 8 + 7 | - 9.550 | + 2 - 4 | | | | | |
| 27 | - 4.449 | + 164 - 32 | - 8.347 | + 95 - 24 | - 6.917 | + 75 - 13 | - 10.571 | + 74 - 13 | - 10.172 | + 38 - 4 | - 9.391 | + 30 - 14 | | | | | |
| Oct. | 7 | - 2.743 | + 175 - 37 | - 7.277 | + 118 - 32 | - 6.069 | + 94 - 20 | - 9.671 | + 105 - 21 | - 9.639 | + 68 - 14 | - 8.949 | + 57 - 26 | | | | |
| 17 | - 0.947 | + 182 - 40 | - 5.985 | + 139 - 38 | - 5.035 | + 111 - 27 | - 8.480 | + 132 - 29 | - 8.817 | + 96 - 23 | - 8.252 | + 83 - 31 | | | | | |
| 27 | + 0.887 | + 183 - 42 | - 4.506 | + 155 - 44 | - 3.845 | + 125 - 33 | - 7.026 | + 156 - 36 | - 7.727 | + 121 - 32 | - 7.297 | + 107 - 38 | | | | | |
| Nov. | 6 | + 2.705 | + 178 - 43 | - 2.883 | + 167 - 49 | - 2.532 | + 135 - 38 | - 5.353 | + 176 - 42 | - 6.397 | + 143 - 41 | - 6.116 | + 128 - 45 | | | | |
| 16 | + 4.449 | + 168 - 43 | - 1.163 | + 174 - 53 | - 1.137 | + 142 - 41 | - 3.508 | + 190 - 47 | - 4.864 | + 161 - 48 | - 4.739 | + 145 - 52 | | | | | |
| 26 | + 6.061 | + 152 - 41 | + 0.599 | + 176 - 55 | + 0.300 | + 144 - 44 | - 1.548 | + 198 - 50 | - 3.176 | + 174 - 53 | - 3.217 | + 158 - 54 | | | | | |
| Dec. | 6 | + 7.495 | + 132 - 40 | + 2.348 | + 171 - 54 | + 1.733 | + 142 - 45 | + 0.468 | + 201 - 52 | - 1.382 | + 182 - 57 | - 1.586 | + 156 - 57 | | | | |
| 16 | + 8.691 | + 103 - 34 | + 4.028 | + 162 - 53 | + 3.116 | + 133 - 46 | + 2.474 | + 197 - 52 | + 0.458 | + 183 - 59 | + 0.098 | + 158 - 56 | | | | | |
| 26 | + 9.564 | + 76 - 28 | + 5.585 | + 147 - 49 | + 4.402 | + 122 - 44 | + 4.405 | + 186 - 50 | + 2.287 | + 179 - 60 | + 1.781 | + 156 - 55 | | | | | |
| 36 | + 10.203 | + 52 - 22 | + 6.966 | + 125 - 44 | + 5.550 | + 105 - 40 | + 6.198 | + 168 - 47 | + 4.045 | + 172 - 58 | + 3.410 | + 145 - 52 | | | | | |

CONTINUATION OF TABLE IV.—*Aberration.*

| | 46 Aurigæ | | | β Ursæ maj. | | | γ Ursæ maj. | | | ε Ursæ maj. | | | ζ Ursæ maj. | | | | | | |
|-------|-----------|---------|----------------------|-------------|----------|----------------------|-------------|----------|----------------------|-------------|----------|----------------------|-------------|----------|----------------------|------|----------|-------|------|
| | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | | | | |
| | 1730 | | | 1730 | | | 1730 | | | 1730 | | | 1730 | | | | | | |
| Jan. | 0 | + 1.277 | + 154 | - 52 | - 15.865 | + 60 | - 14 | - 14.074 | + 11 | - 3 | - 16.876 | - 5 | 0 | - 17.783 | - 75 | + 10 | - 17.349 | - 121 | + 17 |
| | 10 | + 2.804 | + 148 | - 50 | - 14.988 | + 111 | - 23 | - 13.742 | + 55 | - 9 | - 16.664 | + 47 | - 7 | - 18.235 | - 17 | + 2 | - 18.246 | - 59 | + 12 |
| | 20 | + 4.240 | + 137 | - 46 | - 13.643 | + 156 | - 31 | - 12.981 | + 96 | - 14 | - 15.929 | + 98 | - 15 | - 18.117 | + 40 | - 6 | - 18.525 | + 1 | + 6 |
| | 30 | + 5.541 | + 121 | - 40 | - 11.875 | + 195 | - 38 | - 11.816 | + 135 | - 19 | - 14.699 | + 146 | - 22 | - 17.432 | + 95 | - 14 | - 18.227 | + 58 | + 2 |
| Feb. | 9 | + 6.667 | + 102 | - 34 | - 9.743 | + 228 | - 44 | - 10.289 | + 168 | - 22 | - 13.017 | + 188 | - 28 | - 16.209 | + 147 | - 21 | - 17.363 | + 113 | - 4 |
| | 19 | + 7.583 | + 80 | - 26 | - 7.320 | + 253 | - 48 | - 8.449 | + 196 | - 26 | - 10.939 | + 224 | - 33 | - 14.491 | + 194 | - 28 | - 15.967 | + 164 | - 9 |
| Mar. | 1 | + 8.262 | + 55 | - 17 | - 4.685 | + 270 | - 50 | - 6.360 | + 218 | - 29 | - 8.538 | + 252 | - 37 | - 12.339 | + 233 | - 34 | - 14.090 | + 209 | - 14 |
| | 11 | + 8.689 | + 30 | - 8 | - 1.921 | + 279 | - 52 | - 4.090 | + 233 | - 30 | - 5.891 | + 273 | - 40 | - 9.824 | + 266 | - 38 | - 11.797 | + 246 | - 17 |
| | 21 | + 8.854 | + 3 | + 1 | + 0.885 | + 279 | - 51 | - 1.709 | + 240 | - 31 | - 3.082 | + 285 | - 41 | - 7.029 | + 289 | - 41 | - 9.163 | + 276 | - 21 |
| | 31 | + 8.756 | - 23 | + 9 | + 3.649 | + 270 | - 49 | + 0.708 | + 240 | - 31 | - 0.198 | + 288 | - 41 | - 4.043 | + 304 | - 43 | - 6.275 | + 297 | - 23 |
| Apr. | 10 | + 8.403 | - 47 | + 18 | + 6.291 | + 254 | - 46 | + 3.091 | + 233 | - 29 | + 2.677 | + 283 | - 41 | - 0.955 | + 309 | - 44 | - 3.218 | + 310 | - 26 |
| | 20 | + 7.808 | - 70 | + 26 | + 8.736 | + 231 | - 41 | + 5.372 | + 220 | - 26 | + 5.456 | + 269 | - 38 | + 2.143 | + 306 | - 43 | - 0.085 | + 313 | - 27 |
| | 30 | + 6.994 | - 91 | + 33 | + 10.919 | + 202 | - 35 | + 7.486 | + 200 | - 24 | + 8.066 | + 249 | - 36 | + 5.164 | + 294 | - 42 | + 3.032 | + 307 | - 27 |
| May | 10 | + 5.985 | - 109 | + 39 | + 12.782 | + 168 | - 29 | + 9.379 | + 176 | - 21 | + 10.436 | + 222 | - 32 | + 8.024 | + 274 | - 38 | + 6.051 | + 293 | - 27 |
| | 20 | + 4.813 | - 124 | + 44 | + 14.278 | + 130 | - 21 | + 11.001 | + 147 | - 18 | + 12.501 | + 189 | - 27 | + 10.646 | + 247 | - 34 | + 8.886 | + 271 | - 26 |
| | 30 | + 3.510 | - 135 | + 48 | + 15.372 | + 88 | - 14 | + 12.310 | + 114 | - 13 | + 14.212 | + 151 | - 21 | + 12.963 | + 213 | - 29 | + 11.463 | + 242 | - 24 |
| June | 9 | + 2.115 | - 142 | + 50 | + 16.036 | + 44 | - 5 | + 13.275 | + 78 | - 9 | + 15.524 | + 110 | - 16 | + 14.915 | + 174 | - 24 | + 13.716 | + 206 | - 22 |
| | 19 | + 0.664 | - 146 | + 51 | + 16.258 | 0 | + 3 | + 13.872 | + 41 | - 4 | + 16.406 | + 66 | - 9 | + 16.451 | + 131 | - 18 | + 15.587 | + 166 | - 20 |
| | 29 | - 0.804 | - 146 | + 52 | + 16.033 | - 44 | + 12 | + 14.087 | + 2 | + 2 | + 16.836 | + 20 | - 2 | + 17.534 | + 84 | - 11 | + 17.027 | + 121 | - 16 |
| July | 9 | - 2.250 | - 142 | + 49 | + 15.376 | - 88 | + 19 | + 13.916 | - 36 | + 6 | + 16.804 | - 26 | + 4 | + 18.135 | + 35 | - 5 | + 17.999 | + 72 | - 13 |
| | 1 | - 3.635 | - 134 | + 46 | + 14.278 | - 129 | + 27 | + 13.361 | - 74 | + 11 | + 16.309 | - 72 | + 11 | + 18.239 | - 15 | + 3 | + 18.476 | + 22 | - 8 |
| | 29 | - 4.923 | - 122 | + 42 | + 12.793 | - 166 | + 33 | + 12.438 | - 110 | + 15 | + 15.364 | - 116 | + 17 | + 17.838 | - 65 | + 10 | + 18.445 | - 29 | - 4 |
| Aug. | 8 | - 6.075 | - 107 | + 36 | + 10.951 | - 200 | + 38 | + 11.166 | - 143 | + 19 | + 13.990 | - 157 | + 23 | + 16.943 | - 113 | + 16 | + 17.903 | - 79 | + 1 |
| | 18 | - 7.063 | - 89 | + 29 | + 8.796 | - 228 | + 43 | + 9.579 | - 172 | + 23 | + 12.221 | - 194 | + 28 | + 15.571 | - 159 | + 23 | + 16.860 | - 128 | + 5 |
| | 28 | - 7.857 | - 68 | + 22 | + 6.385 | - 251 | + 47 | + 7.717 | - 198 | + 26 | + 10.102 | - 227 | + 33 | + 13.757 | - 201 | + 29 | + 15.338 | - 174 | + 10 |
| Sept. | 7 | - 8.432 | - 46 | + 14 | + 3.782 | - 266 | + 49 | + 5.627 | - 218 | + 28 | + 7.687 | - 253 | + 36 | + 11.543 | - 238 | + 34 | + 13.375 | - 216 | + 14 |
| | 17 | - 8.768 | - 21 | + 6 | + 1.057 | - 275 | + 51 | + 3.364 | - 232 | + 30 | + 5.038 | - 273 | + 39 | + 8.988 | - 269 | + 38 | + 11.017 | - 252 | + 18 |
| | 27 | - 8.852 | + 5 | - 3 | - 1.714 | - 275 | + 50 | + 0.992 | - 239 | + 31 | + 2.229 | - 285 | + 41 | + 6.158 | - 298 | + 41 | + 8.328 | - 282 | + 22 |
| Oct. | 7 | - 8.677 | + 30 | - 12 | - 4.451 | - 268 | + 48 | - 1.423 | - 240 | + 31 | - 0.661 | - 289 | + 41 | + 3.133 | - 308 | + 43 | + 5.379 | - 304 | + 24 |
| | 17 | - 8.244 | + 56 | - 21 | - 7.070 | - 252 | + 45 | - 3.809 | - 234 | + 29 | - 3.548 | - 284 | + 40 | - 0.005 | - 315 | + 44 | + 2.255 | - 317 | + 27 |
| | 27 | - 7.561 | + 80 | - 29 | - 9.493 | - 229 | + 42 | - 6.095 | - 220 | + 28 | - 6.346 | - 272 | + 39 | - 3.159 | - 311 | + 44 | - 0.955 | - 320 | + 28 |
| Nov. | 6 | - 6.646 | + 102 | - 35 | - 11.641 | - 197 | + 35 | - 8.207 | - 199 | + 24 | - 8.965 | - 249 | + 36 | - 6.233 | - 299 | + 42 | - 4.153 | - 314 | + 29 |
| | 16 | - 5.523 | + 121 | - 42 | - 13.442 | - 160 | + 27 | - 10.079 | - 172 | + 21 | - 11.322 | - 219 | + 31 | - 9.132 | - 276 | + 39 | - 7.238 | - 298 | + 28 |
| | 26 | - 4.224 | + 137 | - 47 | - 14.836 | - 117 | + 19 | - 11.647 | - 139 | + 17 | - 13.340 | - 181 | + 26 | - 11.760 | - 245 | + 34 | - 10.114 | - 272 | + 27 |
| Dec. | 6 | - 2.791 | + 148 | - 50 | - 15.774 | - 69 | + 11 | - 12.859 | - 101 | + 12 | - 14.949 | - 138 | + 19 | - 14.033 | - 206 | + 30 | - 12.684 | - 238 | + 26 |
| | 16 | - 1.267 | + 155 | - 52 | - 16.221 | - 19 | + 1 | - 13.671 | - 60 | + 6 | - 16.096 | - 90 | + 13 | - 15.871 | - 159 | + 22 | - 14.865 | - 195 | + 23 |
| | 26 | + 0.300 | + 156 | - 53 | - 16.161 | + 32 | - 8 | - 14.058 | - 17 | + 1 | - 16.740 | - 38 | + 5 | - 17.216 | - 107 | + 15 | - 16.583 | - 146 | + 19 |
| | 36 | + 1.858 | + 149 | - 52 | - 15.589 | + 79 | - 19 | - 14.001 | + 27 | - 5 | - 16.859 | + 18 | - 2 | - 18.019 | - 51 | + 7 | - 17.780 | - 94 | + 15 |

CONTINUATION OF TABLE IV.—*Aberration.*

| | η Ursæ maj. | | | β Draconis | | | ι Herculis | | | ξ Draconis | | | γ Draconis | | | δ Cassiopeæ | | | |
|-------|------------------|---------|----------------------|------------------|---------|----------------------|------------------|---------|----------------------|----------------|---------|----------------------|-------------------|---------|----------------------|--------------------|---------|----------------------|-----|
| | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | 1730 | | Variation in 10 yrs. | |
| | 1730 | | | 1730 | | | 1730 | | | 1730 | | | 1730 | | | 1730 | | | |
| Jan. | 0 | -15.992 | -152 | +18 | -5.853 | -350 | +4 | -5.066 | -342 | +20 | -4.297 | -343 | +15 | -4.077 | -338 | +18 | +16.033 | -132 | +18 |
| | 10 | -17.211 | -95 | +10 | -9.066 | -307 | -2 | -8.215 | -302 | +19 | -7.672 | -325 | +14 | -7.393 | -320 | +17 | +14.443 | -181 | +26 |
| | 20 | -17.890 | -40 | +4 | -11.993 | -274 | -7 | -11.103 | -271 | +18 | -10.800 | -296 | +12 | -10.472 | -291 | +16 | +12.404 | -223 | +32 |
| | 30 | -18.009 | +16 | -3 | -14.537 | -232 | -13 | -13.638 | -232 | +16 | -13.586 | -257 | +11 | -13.218 | -253 | +14 | +9.982 | -257 | +36 |
| Feb. | 9 | -17.568 | +71 | -11 | -16.623 | -183 | -19 | -15.742 | -186 | +13 | -15.943 | -211 | +9 | -15.546 | -208 | +11 | +7.257 | -283 | +40 |
| | 19 | -16.589 | +123 | -16 | -18.190 | -129 | -23 | -17.354 | -134 | +10 | -17.797 | -158 | +7 | -17.385 | -157 | +8 | +4.320 | -300 | +42 |
| Mar. | 1 | -15.106 | +171 | -23 | -19.193 | -71 | -26 | -18.427 | -79 | +7 | -19.100 | -101 | +5 | -18.686 | -102 | +6 | +1.264 | -306 | +43 |
| | 11 | -13.176 | +212 | -27 | -19.611 | -12 | -29 | -18.938 | -23 | +3 | -19.820 | -42 | +3 | -19.415 | -44 | +3 | -1.815 | -304 | +43 |
| | 21 | -10.861 | +247 | -31 | -19.440 | +46 | -31 | -18.880 | +34 | 0 | -19.943 | +17 | 0 | -19.560 | +15 | 0 | -4.823 | -293 | +41 |
| | 31 | -8.239 | +274 | -34 | -18.696 | +102 | -32 | -18.265 | +88 | -3 | -19.475 | +75 | -3 | -19.124 | +71 | -3 | -7.671 | -273 | +38 |
| Apr. | 10 | -5.390 | +292 | -36 | -17.409 | +153 | -32 | -17.119 | +139 | -6 | -18.441 | +130 | -4 | -18.133 | +125 | -6 | -10.278 | -245 | +34 |
| | 20 | -2.402 | +302 | -37 | -15.627 | +200 | -30 | -15.484 | +185 | -9 | -16.880 | +170 | -6 | -16.624 | +174 | -8 | -12.574 | -211 | +29 |
| | 30 | +0.640 | +303 | -37 | -13.406 | +241 | -28 | -13.416 | +225 | -11 | -14.844 | +224 | -8 | -14.647 | +218 | -9 | -14.500 | -172 | +24 |
| May | 10 | +3.649 | +295 | -36 | -10.817 | +274 | -25 | -10.977 | +259 | -13 | -12.397 | +262 | -9 | -12.264 | +255 | -12 | -16.007 | -128 | +19 |
| | 20 | +6.542 | +280 | -33 | -7.936 | +299 | -21 | -8.241 | +285 | -15 | -9.614 | +291 | -10 | -9.548 | +284 | -13 | -17.053 | -81 | +11 |
| June | 30 | +9.243 | +257 | -30 | -4.844 | +316 | -17 | -5.284 | +303 | -16 | -6.572 | +313 | -11 | -6.575 | +306 | -14 | -17.623 | -33 | +4 |
| | 9 | +11.680 | +227 | -26 | -1.626 | +324 | -12 | -2.191 | +312 | -16 | -3.357 | +331 | -11 | -3.429 | +319 | -14 | -17.705 | +16 | -2 |
| | 19 | +13.792 | +192 | -22 | +1.631 | +323 | -8 | +0.958 | +313 | -17 | -0.056 | +330 | -11 | -0.195 | +324 | -14 | -17.298 | +64 | -9 |
| July | 29 | +15.521 | +152 | -17 | +4.839 | +314 | -3 | +4.076 | +306 | -17 | +3.243 | +325 | -11 | +3.042 | +319 | -14 | -16.417 | +111 | -15 |
| | 9 | +16.824 | +107 | -12 | +7.912 | +297 | +4 | +7.082 | +291 | -16 | +6.453 | +312 | -11 | +6.194 | +307 | -13 | -15.084 | +154 | -21 |
| Aug. | 19 | +17.665 | +60 | -6 | +10.772 | +271 | +8 | +9.896 | +268 | -15 | +9.487 | +292 | -10 | +9.179 | +286 | -13 | -13.335 | +193 | -27 |
| | 29 | +18.020 | +11 | +1 | +13.339 | +239 | +13 | +12.442 | +238 | -14 | +12.266 | +261 | -9 | +11.916 | +258 | -12 | -11.215 | +226 | -32 |
| | 8 | +17.878 | -39 | +6 | +15.544 | +199 | +17 | +14.649 | +201 | -12 | +14.711 | +224 | -7 | +14.330 | +222 | -11 | -8.780 | +256 | -35 |
| Sept. | 18 | +17.236 | -89 | +12 | +17.322 | +154 | +21 | +16.458 | +158 | -10 | +16.755 | +181 | -6 | +16.351 | +180 | -8 | -6.091 | +278 | -39 |
| | 28 | +16.107 | -136 | +18 | +18.620 | +104 | +25 | +17.807 | +110 | -7 | +18.336 | +132 | -5 | +17.922 | +132 | -7 | -3.220 | +292 | -41 |
| Oct. | 7 | +14.516 | -180 | +23 | +19.397 | +50 | +28 | +18.658 | +59 | -5 | +19.404 | +79 | -4 | +18.991 | +80 | -5 | -0.244 | +298 | -42 |
| | 17 | +12.499 | -220 | +28 | +19.621 | -6 | +29 | +18.981 | +5 | -3 | +19.921 | +23 | -1 | +19.522 | +25 | -2 | +2.752 | +297 | -41 |
| | 27 | +10.111 | -254 | +32 | +19.279 | -63 | +31 | +18.755 | -50 | +1 | +19.865 | -35 | +2 | +19.490 | -32 | +1 | +5.689 | +286 | -40 |
| Nov. | 7 | +7.412 | -282 | +35 | +18.369 | -118 | +31 | +17.977 | -105 | +5 | +19.225 | -93 | +3 | +18.887 | -88 | +4 | +8.474 | +267 | -37 |
| | 17 | +4.479 | -301 | +37 | +16.910 | -172 | +31 | +16.664 | -157 | +8 | +18.014 | -148 | +5 | +17.721 | -144 | +6 | +11.024 | +239 | -34 |
| Dec. | 27 | +1.394 | -311 | +38 | +14.935 | -221 | +31 | +14.842 | -205 | +11 | +16.254 | -201 | +7 | +16.017 | -195 | +9 | +13.258 | +204 | -29 |
| | 6 | -1.749 | -312 | +38 | +12.498 | -263 | +29 | +12.562 | -248 | +14 | +13.993 | -248 | +9 | +13.818 | -242 | +12 | +15.100 | +162 | -23 |
| | 16 | -4.853 | -304 | +37 | +9.667 | -298 | +26 | +9.887 | -283 | +16 | +11.293 | -288 | +11 | +11.187 | -282 | +14 | +16.491 | +114 | -16 |
| 16 | -7.819 | -285 | +34 | +6.527 | -325 | +22 | +6.896 | -310 | +18 | +8.235 | -319 | +12 | +8.199 | -312 | +16 | +17.377 | +62 | -8 | |
| | 6 | -10.554 | -257 | +31 | +3.173 | -341 | +18 | +3.680 | -328 | +19 | +4.909 | -341 | +14 | +4.948 | -333 | +17 | +17.727 | +7 | -1 |
| 26 | -12.965 | -221 | +27 | -0.289 | -346 | +13 | +0.342 | -335 | +20 | +1.422 | -351 | +15 | +1.533 | -344 | +18 | +17.524 | -48 | +7 | |
| | -14.973 | -177 | +21 | -3.747 | -340 | +8 | -3.013 | -331 | +21 | -2.115 | -350 | +15 | -1.935 | -344 | +18 | +16.772 | -102 | +14 | |
| | 36 | -16.511 | -126 | +15 | -7.087 | -324 | +2 | -6.273 | -315 | +19 | -5.586 | -339 | +14 | -5.343 | -334 | +18 | +15.492 | -154 | +22 |

TABLE V.—*Reduction of the Wanstead Observations.*

λ CASSIOPEÆ.

Assuming $P = 36^\circ 55' + 99''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 Sept. 10 | 145.5 | 143.88 | — 46.56 | + 1.55 | + 0.32 | — 0.79 | — 45.48 | 98.40 |
| | 15 | 143.1 | 141.51 | — 46.28 | + 1.60 | + 0.20 | + 1.27 | 98.30 |
| | 26 | 139.0 | 137.45 | — 45.68 | + 1.66 | + 0.01 | + 4.33 | 97.77 |
| | 27 | 140.4 | 138.84 | — 45.62 | + 1.67 | — 0.01 | + 4.61 | 99.49 |
| | 30 | 139.7 | 138.14 | — 45.46 | + 1.69 | — 0.07 | + 5.42 | 99.72 |
| | Nov. 23 | 124.9 | 123.51 | — 42.49 | + 2.00 | — 0.48 | + 15.83 | 98.37 |
| | 25 | 123.6 | 122.22 | — 42.38 | + 2.01 | — 0.47 | + 15.99 | 97.37 |
| | Dec. 3 | 123.3 | 121.93 | — 41.94 | + 2.05 | — 0.37 | + 16.43 | 98.10 |
| | 16 | 122.4 | 121.04 | — 41.22 | + 2.13 | — 0.17 | + 16.46 | 98.24 |
| | 23 | 122.3 | 120.94 | — 40.84 | + 2.17 | — 0.04 | + 16.14 | 98.37 |
| 1728 Jan. 1 | 122.2 | 120.84 | — 40.78 | + 2.18 | — 0.02 | + 16.05 | — 22.57 | 98.27 |
| | 9 | 122.4 | 121.04 | — 40.73 | + 2.18 | 0.00 | + 15.98 | 98.47 |
| | 14 | 124.3 | 122.92 | — 39.46 | + 2.30 | + 0.38 | + 12.93 | 99.07 |
| | Nov. 28 | 101.0 | 99.88 | — 22.02 | + 3.98 | — 0.42 | + 16.25 | 97.67 |
| | Dec. 3 | 101.3 | 100.18 | — 21.75 | + 4.01 | — 0.36 | + 16.46 | 98.54 |
| | 10 | 100.3 | 99.19 | — 21.36 | + 4.04 | — 0.25 | + 16.56 | 98.18 |
| | 11 | 101.0 | 99.88 | — 21.31 | + 4.04 | — 0.23 | + 16.56 | 98.94 |
| | 12 | 101.0 | 99.88 | — 21.25 | + 4.05 | — 0.22 | + 16.55 | 99.01 |
| | 15 | 101.0 | 99.88 | — 21.09 | + 4.06 | — 0.17 | + 16.48 | 99.16 |
| | 20 | 100.2 | 99.09 | — 20.81 | + 4.08 | — 0.09 | + 16.26 | 98.53 |
| 1729 Jan. 1 | 24 | 99.5 | 98.39 | — 20.59 | + 4.10 | — 0.02 | + 16.00 | 97.88 |
| | 9 | 99.5 | 98.39 | — 20.13 | + 4.15 | + 0.14 | + 15.22 | 97.77 |
| | Dec. 9 | 78.7 | 77.82 | — 1.28 | + 5.55 | — 0.28 | + 16.57 | 98.38 |
| | 13 | 78.5 | 77.62 | — 1.06 | + 5.56 | — 0.21 | + 16.53 | 98.44 |
| | 14 | 76.2 | 75.35 | — 1.01 | + 5.56 | — 0.19 | + 16.51 | 96.22 |
| | 16 | 79.5 | 78.61 | — 0.89 | + 5.57 | — 0.16 | + 16.45 | 99.58 |
| | 21 | 78.5 | 77.62 | — 0.62 | + 5.59 | — 0.08 | + 16.22 | 98.73 |
| | 22 | 78.3 | 77.43 | — 0.56 | + 5.59 | — 0.06 | + 16.16 | 98.56 |
| | 1730 Dec. 23 | 56.7 | 56.07 | + 19.63 | + 6.49 | — 0.04 | + 16.11 | 98.26 |
| | 1731 Jan. 4 | 56.5 | 55.87 | + 20.35 | + 6.51 | + 0.20 | + 14.77 | 97.70 |
| 1732 Jan. 19 | 39.0 | 38.57 | + 41.42 | + 6.65 | + 0.44 | + 11.96 | + 60.47 | 99.04 |
| | 1733 Jan. 10 | 19.0 | 18.79 | + 61.01 | + 6.02 | + 0.32 | + 13.83 | 81.18 |
| | 1734 Dec. 22 | 19.8 | 19.58 | + 100.16 | + 3.02 | — 0.06 | + 16.17 | 119.29 |
| | 1735 Jan. 2 | 19.0 | 18.79 | + 100.82 | + 2.85 | + 0.17 | + 15.04 | 118.88 |
| | 5 | 20.0 | 19.78 | + 100.99 | + 2.83 | + 0.22 | + 14.64 | 118.68 |
| | 1739 Jan. 2 | 95.0 | 93.94 | + 181.40 | — 5.42 | + 0.17 | + 15.04 | 191.19 |
| | 8 | 91.5 | 90.48 | + 181.73 | — 5.44 | + 0.27 | + 14.20 | 190.76 |
| | | | | | | | | 100.28 |

TABLE V.—*Reduction of the Wanstead Observations.*

α CASSIOPEÆ.

Assuming $P = 34^\circ 55' + 13''$.

| Day of Observation. | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 |
|---------------------|---------------------|---------|------------|----------------|----------------|------------|--------------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 Sept. | 10 | 60.8 | 60.12 | -45.96 | +1.88 | +0.29 | - 1.00 | -43.37 16.75 |
| | 15 | 56.3 | 55.68 | -45.69 | +1.91 | +0.22 | + 0.42 | -43.14 12.54 |
| | 19 | 55.0 | 54.39 | -45.48 | +1.93 | +0.16 | + 1.54 | -41.85 12.54 |
| | 20 | 55.6 | 54.98 | -45.42 | +1.94 | +0.14 | + 1.82 | -41.52 13.46 |
| | 22 | 54.7 | 54.09 | -45.31 | +1.95 | +0.12 | + 2.39 | -40.85 13.24 |
| | 26 | 54.5 | 53.89 | -45.10 | +1.98 | +0.06 | + 3.53 | -39.53 14.36 |
| | 27 | 52.0 | 51.42 | -45.04 | +1.98 | +0.04 | + 3.81 | -39.21 12.21 |
| | 30 | 52.9 | 52.31 | -44.87 | +2.00 | -0.01 | + 4.64 | -38.24 14.07 |
| | Oct. 19 | 46.8 | 46.27 | -43.84 | +2.11 | -0.36 | + 9.57 | -32.52 13.75 |
| | 23 | 45.5 | 44.99 | -43.63 | +2.13 | -0.41 | +10.39 | -31.52 13.47 |
| | Nov. 6 | 40.0 | 39.55 | -42.86 | +2.21 | -0.52 | +13.38 | -27.79 11.76 |
| | 23 | 38.0 | 37.58 | -41.94 | +2.31 | -0.48 | +15.83 | -24.28 13.30 |
| | 25 | 37.5 | 37.08 | -41.84 | +2.32 | -0.47 | +15.93 | -24.06 13.02 |
| Dec. | 3 | 36.5 | 36.09 | -41.40 | +2.36 | -0.39 | +16.23 | -23.20 12.89 |
| | 16 | 36.2 | 35.80 | -40.69 | +2.43 | -0.19 | +16.72 | -21.73 14.07 |
| | 23 | 34.7 | 34.31 | -40.31 | +2.48 | -0.08 | +16.48 | -21.43 12.88 |
| | 24 | 34.2 | 33.82 | -40.26 | +2.48 | -0.06 | +16.42 | -21.42 12.40 |
| | 25 | 34.2 | 33.82 | -40.21 | +2.49 | -0.04 | +16.35 | -21.41 12.41 |
| | 1728 Jan. 1 | 35.0 | 34.61 | -39.63 | +2.55 | +0.16 | +15.46 | -21.46 13.51 |
| | 9 | 35.0 | 34.61 | -39.23 | +2.59 | +0.30 | +14.42 | -21.92 12.69 |
| | 14 | 36.0 | 35.60 | -38.96 | +2.62 | +0.37 | +13.61 | -22.36 13.21 |
| | 27 | 38.0 | 37.58 | -38.25 | +2.69 | +0.50 | +11.03 | -24.03 13.55 |
| | 31 | 38.1 | 37.68 | -38.03 | +2.71 | +0.53 | +10.90 | -23.89 13.79 |
| Feb. | 13 | 40.5 | 40.04 | -37.33 | +2.79 | +0.51 | + 6.80 | -27.23 12.81 |
| | 14 | 42.5 | 42.02 | -37.28 | +2.79 | +0.51 | + 6.53 | -27.45 14.57 |
| | 16 | 41.5 | 41.03 | -37.17 | +2.80 | +0.50 | + 5.99 | -27.88 13.15 |
| | Apr. 3 | 51.4 | 50.83 | -34.72 | +3.05 | -0.18 | - 6.74 | -38.59 12.24 |
| | 18 | 54.6 | 53.99 | -33.91 | +3.13 | -0.40 | -10.40 | -41.58 12.41 |
| May | 29 | 57.6 | 55.97 | -33.32 | +3.19 | -0.51 | -12.66 | -43.30 12.67 |
| | 19 | 59.0 | 58.34 | -32.23 | +3.29 | -0.50 | -15.57 | -45.01 13.33 |
| | June 18 | 56.8 | 56.17 | -30.69 | +3.45 | -0.11 | -16.64 | -43.99 12.18 |
| July | 28 | 56.0 | 55.38 | -30.06 | +3.50 | +0.06 | -16.07 | -42.54 12.84 |
| | 4 | 56.7 | 56.07 | -29.72 | +3.53 | +0.17 | -15.53 | -41.55 14.52 |
| | 5 | 56.0 | 55.38 | -29.67 | +3.54 | +0.19 | -15.42 | -41.36 14.02 |
| | 9 | 54.0 | 53.40 | -29.45 | +3.56 | +0.25 | -14.94 | -40.58 12.82 |
| | 16 | 53.4 | 52.81 | -29.07 | +3.59 | +0.34 | -13.97 | -39.11 13.70 |
| Aug. | 7 | 48.0 | 47.47 | -27.88 | +3.70 | +0.53 | - 9.73 | -33.38 14.09 |
| | 9 | 46.8 | 46.28 | -27.77 | +3.71 | +0.53 | - 9.24 | -32.77 13.51 |
| | 11 | 46.5 | 45.98 | -27.66 | +3.72 | +0.52 | - 8.74 | -32.16 13.82 |
| | Sept. 24 | 33.0 | 32.63 | -25.27 | +3.94 | +0.05 | + 3.18 | -18.10 14.53 |
| Oct. | 29 | 30.0 | 29.67 | -25.00 | +3.96 | -0.04 | + 4.55 | -16.53 13.14 |
| | 30 | 29.5 | 29.17 | -24.95 | +3.97 | -0.06 | + 4.82 | -16.52 12.65 |
| | 1 | 29.8 | 29.47 | -24.89 | +3.97 | -0.07 | + 5.08 | -15.91 13.56 |
| | 26 | 21.3 | 21.07 | -23.54 | +4.09 | -0.45 | +11.34 | - 8.56 12.51 |
| | 29 | 20.0 | 19.78 | -23.36 | +4.11 | -0.48 | +11.96 | - 7.77 12.01 |
| Nov. | 11 | 17.6 | 17.40 | -22.66 | +4.17 | -0.52 | +14.29 | - 4.72 12.68 |
| | 28 | 15.0 | 14.83 | -21.74 | +4.25 | -0.44 | +16.24 | - 1.69 13.14 |
| | Dec. 3 | 14.0 | 13.84 | -21.47 | +4.27 | -0.38 | +16.54 | - 1.04 12.80 |
| 4 | 13.0 | 12.86 | -21.42 | +4.27 | -0.37 | +16.59 | - 0.93 11.93 | |
| | 10 | 14.5 | 14.33 | -21.09 | +4.30 | -0.27 | +16.75 | - 0.31 14.02 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|--------------------|----------------|------------|--------------------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1729 | Dec. 11 | 13.5 | 13.35 | — 21 ⁰⁴ | + 4.30 | - 0.25 | + 16 ⁷⁸ | — 0.21 13.14 |
| | 12 | 13.2 | 13.06 | — 20.99 | + 4.31 | - 0.26 | + 16.75 | — 0.19 12.87 |
| | 15 | 13.5 | 13.35 | — 20.82 | + 4.33 | - 0.22 | + 16.74 | — 0.03 13.38 |
| | 20 | 11.8 | 11.67 | — 20.55 | + 4.35 | - 0.10 | + 16.59 | + 0.29 11.96 |
| | 22 | 12.8 | 12.66 | — 20.44 | + 4.36 | - 0.06 | + 16.49 | + 0.35 13.01 |
| | 24 | 12.2 | 12.07 | — 20.33 | + 4.37 | - 0.03 | + 16.39 | + 0.40 12.47 |
| | 26 | 12.3 | 12.17 | — 20.22 | + 4.38 | + 0.01 | + 16.29 | + 0.46 12.63 |
| | 27 | 12.0 | 11.87 | — 20.17 | + 4.38 | + 0.03 | + 16.24 | + 0.48 12.35 |
| | Feb. 5 | 17.5 | 17.30 | — 17.93 | + 4.57 | + 0.52 | + 9.20 | — 3.64 13.66 |
| | Mar. 8 | 24.3 | 24.03 | — 16.25 | + 4.71 | + 0.27 | + 0.64 | — 10.63 13.40 |
| | 9 | 23.0 | 22.74 | — 16.20 | + 4.71 | + 0.26 | + 0.35 | — 10.88 11.86 |
| | 28 | 29.5 | 29.17 | — 15.16 | + 4.80 | - 0.08 | - 5.07 | — 15.51 13.66 |
| 1730 | 29 | 31.5 | 31.14 | — 15.11 | + 4.80 | - 0.10 | - 5.34 | — 15.57 15.39 |
| | Apr. 20 | 33.0 | 32.63 | — 13.91 | + 4.89 | - 0.43 | - 10.80 | — 20.25 12.38 |
| | June 14 | 35.7 | 35.30 | — 10.92 | + 5.11 | - 0.19 | - 16.74 | — 22.74 12.56 |
| | 15 | 36.7 | 36.29 | — 10.87 | + 5.11 | - 0.17 | - 16.73 | — 22.66 13.63 |
| | 16 | 36.5 | 36.09 | — 10.82 | + 5.12 | - 0.16 | - 16.71 | — 22.57 13.52 |
| | 17 | 35.6 | 35.20 | — 10.76 | + 5.12 | - 0.15 | - 16.68 | — 22.47 12.73 |
| | 18 | 36.5 | 36.09 | — 10.71 | + 5.13 | - 0.13 | - 16.65 | — 22.36 13.73 |
| | 19 | 37.0 | 36.59 | — 10.66 | + 5.13 | - 0.11 | - 16.61 | — 22.25 14.34 |
| | 22 | 35.5 | 35.10 | — 10.49 | + 5.14 | - 0.05 | - 16.48 | — 21.88 13.22 |
| | July 5 | 33.0 | 32.63 | — 9.78 | + 5.19 | + 0.17 | - 15.45 | — 19.87 12.76 |
| | Oct. 8 | 5.5 | 5.43 | — 4.62 | + 5.54 | - 0.20 | + 6.95 | + 7.67 13.10 |
| 1731 | 26 | 1.0 | 0.99 | — 3.65 | + 5.60 | - 0.45 | + 11.28 | + 12.78 11.79 |
| | 28 | 0.7 | 0.69 | — 3.53 | + 5.61 | - 0.47 | + 11.71 | + 13.32 12.63 |
| | Dec. 4 | 9.0 | 8.90 | — 1.53 | + 5.72 | - 0.37 | + 16.57 | + 20.39 11.49 |
| | 9 | 8.2 | 8.11 | — 1.25 | + 5.74 | - 0.29 | + 16.73 | + 20.93 12.82 |
| | 13 | 9.3 | 9.20 | — 1.04 | + 5.75 | - 0.23 | + 16.77 | + 21.25 12.05 |
| | 14 | 9.5 | 9.39 | — 0.98 | + 5.75 | - 0.21 | + 16.75 | + 21.31 11.92 |
| | 16 | 8.5 | 8.40 | — 0.87 | + 5.76 | - 0.18 | + 16.73 | + 21.44 13.04 |
| | 21 | 10.8 | 10.68 | — 0.60 | + 5.77 | - 0.10 | + 16.56 | + 21.63 10.95 |
| | 22 | 10.0 | 9.89 | — 0.55 | + 5.77 | - 0.08 | + 16.51 | + 21.65 11.76 |
| | June 18 | 14.0 | 13.84 | + 9.17 | + 6.25 | + 0.40 | - 16.65 | — 0.83 13.01 |
| 1732 | 22 | 14.0 | 13.84 | + 9.38 | + 6.26 | + 0.45 | - 16.48 | — 0.39 13.45 |
| | 30 | 13.3 | 13.16 | + 9.83 | + 6.28 | + 0.50 | - 15.95 | + 0.66 13.82 |
| | Dec. 20 | 31.0 | 30.65 | + 19.22 | + 6.56 | - 0.11 | + 16.61 | + 42.28 11.63 |
| | 22 | 31.5 | 31.14 | + 19.33 | + 6.57 | - 0.07 | + 16.52 | + 42.35 11.21 |
| | 23 | 32.5 | 32.13 | + 19.38 | + 6.57 | - 0.05 | + 16.47 | + 42.37 10.24 |
| | Jan. 19 | 49.7 | 49.14 | + 40.90 | + 6.62 | + 0.43 | + 12.68 | + 60.63 11.49 |
| | Apr. 28 | 27.5 | 27.19 | + 46.21 | + 6.50 | - 0.49 | - 12.47 | + 39.75 12.56 |
| | 1733 Jan. 10 | 68.0 | 67.24 | + 60.23 | + 5.88 | + 0.29 | + 14.46 | + 80.86 13.62 |
| | Feb. 1 | 65.5 | 64.77 | + 61.43 | + 5.81 | + 0.52 | + 10.62 | + 78.38 13.61 |
| 1734 | June 23 | 63.0 | 62.30 | + 89.01 | + 3.65 | - 0.04 | - 16.45 | + 76.17 13.87 |
| | 24 | 63.5 | 62.79 | + 89.07 | + 3.65 | - 0.02 | - 16.39 | + 76.31 13.52 |
| | Dec. 22 | 106.6 | 105.41 | + 98.90 | + 2.63 | - 0.07 | + 16.51 | + 117.97 12.56 |
| | 1735 Jan. 2 | 106.0 | 104.82 | + 99.55 | + 2.56 | + 0.15 | + 15.55 | + 117.81 12.99 |
| | 5 | 107.0 | 105.81 | + 99.71 | + 2.54 | + 0.20 | + 15.18 | + 117.63 11.82 |
| | 1739 Jan. 3 | 128.2 | 176.22 | + 179.16 | - 5.61 | + 0.17 | + 15.43 | + 189.15 12.93 |
| | 8 | 178.0 | 176.02 | + 179.43 | - 5.63 | + 0.26 | + 14.77 | + 188.83 12.81 |
| | 1740 June 13 | 171.0 | 169.10 | + 207.85 | - 6.70 | - 0.20 | - 16.62 | + 184.33 15.23 |
| | 1747 Mar. 10 | 336.0 | 332.26 | + 341.85 | + 3.69 | + 0.26 | + 0.24 | + 346.04 13.78 |

TABLE V.—*Reduction of the Wanstead Observations.*

τ PERSEI.

Assuming $P = 38^\circ 20' + 28''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Sept. 22 | 62.8 | 62.10 | — 35.50 | + 6.27 | + 0.38 | — 4.52 | — 33.37 28.73 |
| | 27 | 60.8 | 60.12 | — 35.29 | + 6.29 | + 0.32 | — 3.46 | — 32.14 27.98 |
| | Oct. 24 | 53.9 | 53.30 | — 34.14 | + 6.40 | — 0.17 | + 2.55 | — 25.36 27.94 |
| | 31 | 53.6 | 53.00 | — 33.84 | + 6.43 | — 0.28 | + 4.09 | — 23.60 29.40 |
| | Nov. 25 | 45.8 | 45.29 | — 32.77 | + 6.51 | — 0.54 | + 8.96 | — 17.84 27.45 |
| | Dec. 23 | 42.0 | 41.53 | — 31.59 | + 6.61 | — 0.36 | + 12.38 | — 12.96 28.57 |
| | 1728 | Jan. 1 | 41.4 | 40.94 | — 31.07 | + 6.65 | — 0.16 | + 12.98 |
| | | 9 | 40.1 | 39.65 | — 30.72 | + 6.68 | 0.00 | + 13.03 |
| | | 14 | 41.6 | 41.13 | — 30.57 | + 6.69 | + 0.09 | + 12.94 |
| | | 27 | 40.2 | 39.75 | — 29.96 | + 6.73 | + 0.32 | + 12.24 |
| | | Feb. 13 | 41.0 | 40.54 | — 29.24 | + 6.79 | + 0.51 | + 10.35 |
| 1729 | 14 | 42.0 | 41.53 | — 29.20 | + 6.79 | + 0.52 | + 10.21 | — 11.68 29.85 |
| | 15 | 39.8 | 39.36 | — 29.15 | + 6.79 | + 0.52 | + 10.07 | — 11.77 27.59 |
| | 16 | 42.4 | 41.93 | — 29.11 | + 6.80 | + 0.53 | + 9.92 | — 11.86 30.07 |
| | Aug. 9 | 55.7 | 55.08 | — 21.75 | + 7.24 | + 0.43 | — 11.53 | — 25.61 29.47 |
| | 14 | 52.0 | 51.42 | — 21.54 | + 7.25 | + 0.48 | — 10.98 | — 24.79 26.63 |
| | 18 | 54.5 | 53.89 | — 21.36 | + 7.26 | + 0.51 | — 10.48 | — 24.07 29.82 |
| | 24 | 52.7 | 52.11 | — 21.11 | + 7.27 | + 0.54 | — 9.65 | — 22.95 29.16 |
| | 30 | 52.0 | 51.42 | — 20.86 | + 7.28 | + 0.55 | — 8.71 | — 21.74 29.68 |
| | Oct. 29 | 35.0 | 34.61 | — 18.30 | + 7.39 | — 0.27 | + 3.82 | — 7.36 27.25 |
| | Nov. 11 | 32.5 | 32.13 | — 17.75 | + 7.41 | — 0.45 | + 6.53 | — 4.26 27.87 |
| 1730 | 30 | 28.0 | 27.69 | — 16.94 | + 7.43 | — 0.54 | + 9.88 | — 0.17 27.52 |
| | Dec. 3 | 27.5 | 27.19 | — 16.81 | + 7.44 | — 0.54 | + 10.31 | + 0.40 27.59 |
| | 4 | 27.5 | 27.19 | — 16.77 | + 7.44 | — 0.53 | + 10.45 | + 0.59 27.78 |
| | 12 | 26.5 | 26.20 | — 16.43 | + 7.45 | — 0.48 | + 11.45 | + 1.99 28.19 |
| | 22 | 23.5 | 23.23 | — 16.01 | + 7.46 | — 0.36 | + 12.36 | + 3.45 26.68 |
| | Jan. 1 | 22.5 | 22.24 | — 15.54 | + 7.48 | — 0.18 | + 12.93 | + 4.69 26.93 |
| | 14 | 21.6 | 21.36 | — 14.98 | + 7.49 | + 0.07 | + 12.98 | + 5.56 26.92 |
| | 25 | 22.5 | 22.24 | — 14.52 | + 7.51 | + 0.22 | + 12.47 | + 5.68 27.92 |
| | Feb. 5 | 22.5 | 22.24 | — 14.05 | + 7.52 | + 0.43 | + 11.50 | + 5.40 27.64 |
| | 12 | 23.8 | 23.53 | — 13.76 | + 7.52 | + 0.50 | + 10.65 | + 4.91 28.44 |
| 1731 | Aug. 26 | 35.5 | 35.10 | — 5.45 | + 7.58 | + 0.54 | — 9.39 | — 6.72 28.38 |
| | 31 | 34.0 | 33.62 | — 5.25 | + 7.58 | + 0.54 | — 8.59 | — 5.72 27.90 |
| | Sept. 1 | 36.0 | 35.60 | — 5.20 | + 7.58 | + 0.54 | — 8.43 | — 5.51 30.09 |
| | Dec. 9 | 10.0 | 9.89 | — 0.99 | + 7.52 | — 0.51 | + 11.07 | + 17.09 26.98 |
| | 13 | 9.2 | 9.10 | — 0.81 | + 7.51 | — 0.47 | + 11.52 | + 17.75 26.85 |
| | 14 | 8.7 | 8.60 | — 0.77 | + 7.51 | — 0.46 | + 11.63 | + 17.91 26.51 |
| | 21 | 9.0 | 8.90 | — 0.48 | + 7.50 | — 0.38 | + 12.27 | + 18.91 27.81 |
| | Feb. 11 | 8.0 | 7.91 | + 1.78 | + 7.44 | + 0.49 | + 10.82 | + 20.53 28.44 |
| | Jan. 4 | 7.0 | 6.92 | + 15.75 | + 6.67 | — 0.13 | + 13.01 | + 35.30 28.38 |
| | 14 | 8.2 | 8.11 | + 16.18 | + 6.63 | + 0.06 | + 12.99 | + 35.86 27.75 |
| 1732 | 29 | 8.2 | 8.11 | + 16.81 | + 6.57 | + 0.33 | + 12.21 | + 35.92 27.81 |
| | Jan. 6 | 22.5 | 22.24 | + 31.49 | + 5.20 | — 0.06 | + 13.06 | + 49.69 27.45 |
| | 19 | 22.3 | 22.04 | + 32.04 | + 5.12 | + 0.19 | + 12.75 | + 50.10 28.06 |
| | 20 | 21.5 | 21.26 | + 32.08 | + 5.11 | + 0.21 | + 12.70 | + 50.10 28.84 |
| 1733 | Feb. 1 | 35.0 | 34.61 | + 48.13 | + 2.72 | + 0.39 | + 11.90 | + 63.14 28.53 |
| 1739 | Jan. 2 | 119.7 | 118.36 | + 140.34 | — 7.71 | — 0.17 | + 12.95 | + 145.41 27.05 |
| | 3 | 118.5 | 117.18 | + 140.39 | — 7.71 | — 0.15 | + 12.98 | + 145.51 28.33 |
| | 4 | 118.0 | 116.69 | + 140.43 | — 7.71 | — 0.13 | + 13.00 | + 145.59 28.90 |
| 1740 | Feb. 2 | 117.2 | 115.90 | + 140.60 | — 7.70 | — 0.05 | + 13.05 | + 145.90 30.00 |
| | 8 | 134.0 | 132.51 | + 157.33 | — 6.93 | + 0.41 | + 11.69 | + 162.50 29.99 |

TABLE V.—*Reduction of the Wanstead Observations.*

α PERSEI.

Assuming $P = 41^\circ 5' + 71''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|-------|
| | Division of Microm. | Seconds | | | | | | | |
| 1727 | Oct. 31 | 91.7 | 90.68 | -29.98 | +7.16 | -0.23 | + 2.45 | -20.60 | 70.08 |
| | Nov. 25 | 87.5 | 86.52 | -29.04 | +7.23 | -0.53 | + 7.01 | -15.33 | 71.19 |
| | Dec. 23 | 83.0 | 82.08 | -27.99 | +7.30 | -0.41 | +10.57 | -10.53 | 71.55 |
| 1728 | Jan. 9 | 80.3 | 79.41 | -27.23 | +7.36 | -0.07 | +11.56 | - 8.38 | 71.03 |
| | 27 | 80.0 | 79.11 | -26.55 | +7.40 | +0.27 | +11.23 | - 7.65 | 71.46 |
| | Feb. 13 | 79.3 | 78.42 | -25.91 | +7.44 | +0.49 | + 9.90 | - 8.08 | 70.34 |
| | 14 | 79.7 | 78.81 | -25.87 | +7.44 | +0.50 | + 9.79 | - 8.14 | 70.67 |
| | 16 | 80.5 | 79.60 | -25.79 | +7.45 | +0.52 | + 9.56 | - 8.26 | 71.34 |
| | 27 | 82.0 | 81.09 | -25.37 | +7.47 | +0.56 | + 8.14 | - 9.20 | 71.89 |
| | Mar. 3 | 81.2 | 80.30 | -25.27 | +7.48 | +0.55 | + 7.69 | - 9.55 | 70.75 |
| | Apr. 3 | 86.5 | 85.53 | -24.09 | +7.55 | +0.20 | + 2.19 | -14.15 | 71.38 |
| | 18 | 88.5 | 87.51 | -23.53 | +7.58 | -0.08 | - 0.74 | -16.77 | 70.74 |
| May | 6 | 91.0 | 89.99 | -22.85 | +7.61 | -0.37 | - 4.18 | -19.79 | 70.20 |
| | 19 | 93.8 | 92.75 | -22.36 | +7.64 | -0.51 | - 6.40 | -21.63 | 71.12 |
| | June 28 | 96.0 | 94.93 | -20.85 | +7.70 | -0.33 | -11.01 | -24.49 | 70.44 |
| | July 3 | 96.5 | 95.42 | -20.66 | +7.71 | -0.25 | -11.28 | -24.48 | 70.94 |
| | 16 | 95.6 | 94.53 | -20.17 | +7.73 | -0.02 | -11.59 | -24.05 | 70.48 |
| | 30 | 95.5 | 94.43 | -19.65 | +7.75 | +0.23 | -11.33 | -23.00 | 71.43 |
| | 31 | 93.0 | 91.96 | -19.61 | +7.75 | +0.25 | -11.29 | -22.90 | 69.06 |
| | Aug. 2 | 94.8 | 93.74 | -19.53 | +7.75 | +0.28 | -11.19 | -22.69 | 71.05 |
| 1729 | 7 | 93.0 | 91.96 | -19.34 | +7.76 | +0.36 | -10.90 | -22.12 | 69.84 |
| | 9 | 93.0 | 91.96 | -19.27 | +7.76 | +0.38 | -10.76 | -22.27 | 69.69 |
| | 24 | 88.5 | 87.51 | -18.70 | +7.78 | +0.53 | - 9.36 | -19.75 | 67.76 |
| | Oct. 29 | 76.0 | 75.15 | -16.21 | +7.85 | -0.21 | + 2.20 | - 6.37 | 68.78 |
| | Nov. 11 | 73.0 | 72.19 | -15.72 | +7.85 | -0.41 | + 4.72 | - 3.56 | 68.63 |
| | 30 | 71.0 | 70.21 | -15.00 | +7.86 | -0.55 | + 7.92 | + 0.23 | 70.44 |
| | Dec. 3 | 69.5 | 68.72 | -14.89 | +7.86 | -0.55 | + 8.36 | + 0.78 | 69.58 |
| | 4 | 70.5 | 69.71 | -14.85 | +7.86 | -0.55 | + 8.51 | + 0.97 | 70.68 |
| | 12 | 68.7 | 67.93 | -14.55 | +7.86 | -0.51 | + 9.52 | + 2.32 | 70.25 |
| | 20 | 67.0 | 66.25 | -14.25 | +7.87 | -0.44 | +10.36 | + 3.54 | 69.79 |
| | 22 | 66.6 | 65.85 | -14.18 | +7.87 | -0.41 | +10.54 | + 3.82 | 69.67 |
| | 24 | 66.4 | 65.66 | -14.10 | +7.87 | -0.39 | +10.71 | + 4.09 | 69.75 |
| Jan. | 1 | 64.5 | 63.78 | -13.77 | +7.88 | -0.25 | +11.28 | + 5.14 | 68.92 |
| | 25 | 64.4 | 63.69 | -12.87 | +7.88 | +0.21 | +11.42 | + 6.64 | 70.33 |
| | Feb. 12 | 64.2 | 63.49 | -12.18 | +7.88 | +0.47 | +10.12 | + 6.29 | 69.78 |
| | Mar. 8 | 68.0 | 67.24 | -11.28 | +7.88 | +0.53 | + 6.95 | + 4.08 | 71.32 |
| | 9 | 68.0 | 67.24 | -11.24 | +7.88 | +0.52 | + 6.79 | + 3.95 | 71.19 |
| | July 4 | 82.2 | 81.29 | - 6.83 | +7.83 | -0.23 | -11.33 | -10.56 | 70.73 |
| | 5 | 81.5 | 80.59 | - 6.79 | +7.82 | -0.22 | -11.35 | -10.54 | 70.05 |
| | 8 | 81.7 | 80.79 | - 6.67 | +7.82 | -0.17 | -11.45 | -10.47 | 70.32 |
| 1730 | 10 | 83.0 | 82.08 | - 6.59 | +7.82 | -0.13 | -11.50 | -10.40 | 71.68 |
| | 11 | 81.7 | 80.79 | - 6.55 | +7.82 | -0.11 | -11.53 | -10.37 | 70.42 |
| | 12 | 82.0 | 81.09 | - 6.51 | +7.82 | -0.09 | -11.54 | -10.32 | 70.77 |
| | 23 | 81.2 | 80.30 | - 6.11 | +7.81 | +0.11 | -11.53 | - 9.83 | 70.47 |
| | Aug. 18 | 76.0 | 75.15 | - 5.13 | +7.78 | +0.49 | -10.02 | - 6.88 | 68.27 |
| | 26 | 76.8 | 75.94 | - 4.82 | +7.77 | +0.54 | - 9.15 | - 5.66 | 70.28 |
| | Sept. 1 | 76.0 | 75.15 | - 4.60 | +7.76 | +0.55 | - 8.38 | - 4.67 | 70.48 |
| | Dec. 9 | 56.0 | 55.38 | - 0.86 | +7.60 | -0.53 | + 9.13 | +15.34 | 70.72 |
| | 13 | 55.0 | 54.39 | - 0.71 | +7.60 | -0.51 | + 9.60 | +15.98 | 70.37 |
| | 14 | 54.0 | 53.40 | - 0.67 | +7.59 | -0.50 | + 9.72 | +16.14 | 69.54 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|----------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1729 Dec. 21 | 52.7 | 52.11 | — 0.42 | + 7.58 | — 0.43 | + 10.43 | + 17.16 | 69.27 |
| 1730 Feb. 11 | 51.5 | 50.92 | + 1.58 | + 7.46 | + 0.46 | + 10.24 | + 19.74 | 70.66 |
| July 26 | 68.5 | 67.73 | + 7.80 | + 7.00 | + 0.14 | — 11.48 | + 3.46 | 71.19 |
| 1731 Jan. 4 | 40.0 | 39.55 | + 13.95 | + 6.38 | — 0.22 | + 11.38 | + 31.49 | 71.04 |
| 14 | 39.0 | 38.57 | + 14.33 | + 6.33 | — 0.01 | + 11.59 | + 32.24 | 70.81 |
| 29 | 39.5 | 39.06 | + 14.89 | + 6.26 | + 0.27 | + 11.22 | + 32.64 | 71.70 |
| 1732 Jan. 6 | 28.0 | 27.69 | + 27.90 | + 4.61 | — 0.13 | + 11.51 | + 43.89 | 71.57 |
| 19 | 26.8 | 26.50 | + 28.38 | + 4.52 | + 0.12 | + 11.52 | + 44.54 | 71.04 |
| 1734 June 23 | 22.0 | 21.75 | + 61.81 | — 1.88 | — 0.40 | — 10.62 | + 48.91 | 70.66 |
| July 22 | 21.0 | 20.77 | + 62.90 | — 2.09 | + 0.08 | — 11.53 | + 49.36 | 70.13 |
| 1739 Jan. 3 | 56.5 | 55.87 | + 124.40 | — 7.85 | — 0.22 | + 11.33 | + 127.66 | 71.79 |
| 4 | 57.3 | 56.67 | + 124.44 | — 7.85 | — 0.20 | + 11.38 | + 127.77 | 71.10 |
| 1740 Jan. 31 | 73.0 | 72.19 | + 139.34 | — 6.70 | + 0.32 | + 11.00 | + 143.96 | 71.77 |
| Feb. 2 | 72.3 | 71.58 | + 139.42 | — 6.70 | + 0.35 | + 10.86 | + 143.93 | 72.43 |

γ PERSEI.

Assuming $P = 37^\circ 35' - 114''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 Sept. 27 | 83.2 | 82.28 | — 34.09 | + 6.56 | + 0.34 | — 4.15 | — 31.34 | 113.62 |
| Nov. 25 | 98.0 | 96.91 | — 31.66 | + 6.77 | — 0.54 | + 8.36 | — 17.07 | 113.98 |
| Dec. 23 | 102.3 | 101.16 | — 30.51 | + 6.86 | — 0.38 | + 12.08 | — 11.95 | 113.11 |
| 1728 Jan. 9 | 104.8 | 103.63 | — 29.68 | + 6.92 | — 0.03 | + 12.97 | — 9.82 | 113.45 |
| 14 | 106.0 | 104.82 | — 29.47 | + 6.94 | + 0.07 | + 12.94 | — 9.52 | 114.34 |
| 27 | 105.5 | 104.32 | — 28.93 | + 6.97 | + 0.31 | + 12.40 | — 9.25 | 113.57 |
| 31 | 106.7 | 105.51 | — 28.77 | + 6.99 | + 0.37 | + 12.10 | — 9.31 | 114.82 |
| Feb. 13 | 105.0 | 103.83 | — 28.24 | + 7.02 | + 0.51 | + 10.72 | — 9.99 | 113.82 |
| 14 | 104.3 | 103.14 | — 28.20 | + 7.02 | + 0.51 | + 10.59 | — 10.08 | 113.22 |
| 15 | 105.0 | 103.83 | — 28.16 | + 7.03 | + 0.52 | + 10.46 | — 10.15 | 113.98 |
| 16 | 103.7 | 102.54 | — 28.12 | + 7.03 | + 0.52 | + 10.32 | — 10.25 | 112.79 |
| 27 | 103.0 | 101.85 | — 27.67 | + 7.06 | + 0.55 | + 8.88 | — 11.18 | 113.03 |
| Jul. 9 | 88.9 | 87.02 | — 22.28 | + 7.38 | — 0.08 | — 12.92 | — 27.90 | 114.92 |
| Aug. 7 | 89.7 | 88.70 | — 21.09 | + 7.43 | + 0.40 | — 11.96 | — 25.22 | 113.92 |
| 18 | 90.0 | 89.00 | — 20.64 | + 7.45 | + 0.50 | — 10.87 | — 23.56 | 112.56 |
| 24 | 91.5 | 90.48 | — 20.39 | + 7.46 | + 0.53 | — 10.09 | — 22.49 | 112.97 |
| Oct. 29 | 109.0 | 107.79 | — 17.67 | + 7.56 | — 0.25 | + 3.07 | — 7.29 | 115.08 |
| Nov. 11 | 111.0 | 109.76 | — 17.14 | + 7.56 | — 0.44 | + 5.85 | — 4.17 | 113.93 |
| 30 | 116.0 | 114.71 | — 16.36 | + 7.59 | — 0.55 | + 9.31 | — 0.01 | 114.72 |
| Dec. 3 | 116.5 | 115.20 | — 16.24 | + 7.60 | — 0.54 | + 9.79 | + 0.61 | 114.59 |
| 4 | 116.0 | 114.71 | — 16.20 | + 7.60 | — 0.54 | + 9.93 | + 0.79 | 113.92 |
| 12 | 118.8 | 117.48 | — 15.87 | + 7.61 | — 0.49 | + 11.01 | + 2.26 | 115.22 |
| 20 | 120.2 | 118.86 | — 15.54 | + 7.61 | — 0.41 | + 11.88 | + 3.54 | 115.32 |
| 22 | 119.5 | 118.16 | — 15.46 | + 7.61 | — 0.38 | + 12.06 | + 3.83 | 114.33 |
| 24 | 120.8 | 119.45 | — 15.38 | + 7.62 | — 0.35 | + 12.23 | + 4.12 | 115.33 |
| 1729 Jan. 1 | 121.0 | 119.65 | — 15.00 | + 7.63 | — 0.20 | + 12.75 | + 5.18 | 114.47 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1729 | Jan. 3 | 120.0 | 118.66 | — 14.92 | + 7.63 | — 0.17 | + 12.82 | + 5.36 113.30 |
| | 14 | 122.8 | 121.43 | — 14.47 | + 7.64 | + 0.05 | + 12.96 | + 6.18 115.25 |
| | Feb. 5 | 122.5 | 121.13 | — 13.57 | + 7.66 | + 0.42 | + 11.76 | + 6.27 114.86 |
| | Mar. 8 | 118.0 | 116.69 | — 12.29 | + 7.67 | + 0.51 | + 7.25 | + 3.14 113.55 |
| | 9 | 118.5 | 117.18 | — 12.25 | + 7.67 | + 0.50 | + 7.06 | + 2.98 114.20 |
| | July 11 | 102.0 | 100.86 | — 7.15 | + 7.69 | — 0.07 | — 12.95 | — 12.48 113.34 |
| | 23 | 104.5 | 103.33 | — 6.66 | + 7.68 | + 0.15 | — 12.84 | — 11.67 115.00 |
| | Aug. 18 | 109.0 | 107.79 | — 5.60 | + 7.67 | + 0.51 | — 10.88 | — 8.30 116.09 |
| | 26 | 108.5 | 107.29 | — 5.27 | + 7.66 | + 0.54 | — 9.85 | — 6.92 114.21 |
| | Sept. 1 | 108.0 | 106.80 | — 5.02 | + 7.66 | + 0.54 | — 8.92 | — 5.74 112.54 |
| | Dec. 9 | 133.0 | 131.52 | — 0.99 | + 7.56 | — 0.52 | + 10.60 | + 16.65 114.87 |
| | 13 | 134.5 | 133.00 | — 0.79 | + 7.56 | — 0.49 | + 11.10 | + 17.38 115.62 |
| | 14 | 134.5 | 130.00 | — 0.75 | + 7.56 | — 0.48 | + 11.21 | + 17.54 112.46 |
| 1730 | Feb. 11 | 136.5 | 134.98 | + 1.72 | + 7.46 | + 0.48 | + 11.16 | + 20.82 114.16 |
| 1731 | Jan. 4 | 150.3 | 148.63 | + 15.20 | + 6.58 | — 0.16 | + 12.84 | + 34.46 114.17 |
| | 14 | 152.0 | 150.31 | + 15.61 | + 6.54 | + 0.04 | + 12.96 | + 35.15 115.16 |
| | 29 | 151.2 | 149.52 | + 16.23 | + 6.48 | + 0.31 | + 12.40 | + 35.42 114.10 |
| 1732 | Jan. 6 | 165.5 | 163.65 | + 30.39 | + 5.01 | — 0.08 | + 12.92 | + 48.24 115.41 |
| | 19 | 165.5 | 163.65 | + 30.93 | + 4.92 | + 0.16 | + 12.81 | + 48.82 114.83 |
| 1739 | Jan. 2 | 257.0 | 254.14 | + 135.31 | — 7.77 | — 0.19 | + 12.76 | + 140.11 114.03 |
| | 3 | 256.0 | 253.15 | + 135.35 | — 7.77 | — 0.17 | + 12.79 | + 140.20 112.95 |
| | 4 | 257.2 | 254.34 | + 135.39 | — 7.77 | — 0.16 | + 12.83 | + 140.29 114.05 |
| | 8 | 256.0 | 253.15 | + 135.56 | — 7.76 | — 0.08 | + 12.92 | + 140.64 112.51 |
| 1740 | Jan. 31 | 274.0 | 270.95 | + 151.58 | — 6.87 | + 0.39 | + 12.10 | + 157.20 113.75 |
| | Feb. 2 | 272.7 | 269.86 | + 151.66 | — 6.86 | + 0.39 | + 11.93 | + 157.12 112.54 |

δ PERSEI.

Assuming $P = 43^\circ 5' \neq 7''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Oct. 24 | 13.0 | 12.86 | — 27.62 | + 7.53 | + 0.06 | + 0.26 | — 19.77 6.91 |
| | Nov. 25 | 7.4 | 7.32 | — 26.52 | + 7.61 | — 0.52 | + 5.85 | — 13.58 6.26 |
| | Dec. 23 | 3.3 | 3.27 | — 25.56 | + 7.67 | — 0.44 | + 9.32 | — 9.01 5.74 |
| | 1728 | Jan. 9 | 1.0 | 0.99 | — 24.86 | + 7.72 | — 0.12 | + 10.49 |
| | | 27 | 0.5 | 0.49 | — 24.24 | + 7.75 | + 0.23 | + 10.41 |
| | | Feb. 13 | 0.5 | 0.49 | — 23.65 | + 7.79 | + 0.47 | + 9.38 |
| | | 14 | 0.0 | 0.00 | — 23.61 | + 7.79 | + 0.48 | + 9.29 |
| | | 16 | 0.7 | 0.69 | — 23.55 | + 7.79 | + 0.50 | + 9.11 |
| | | 25 | 1.2 | 1.19 | — 23.24 | + 7.81 | + 0.52 | + 8.15 |
| | | 27 | 1.0 | 0.99 | — 23.17 | + 7.81 | + 0.56 | + 7.91 |
| | | Mar. 3 | 1.4 | 1.39 | — 23.07 | + 7.82 | + 0.56 | + 7.53 |
| | | July 31 | 13.5 | 13.35 | — 17.91 | + 8.01 | + 0.21 | — 10.44 |
| | | Aug. 7 | 11.0 | 10.88 | — 17.67 | + 8.02 | + 0.33 | — 10.17 |
| | | 9 | 10.5 | 10.38 | — 17.59 | + 8.02 | + 0.35 | — 10.06 |
| | | 14 | 13.0 | 12.86 | — 17.42 | + 8.02 | + 0.42 | — 9.76 |
| | | 24 | 8.0 | 7.91 | — 17.08 | + 8.03 | + 0.51 | — 8.94 |
| | | Oct. 29 | 2.0 | 1.98 | — 14.81 | + 8.06 | — 0.17 | + 1.32 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1850 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 | Nov. 30 | 8.0 | 7.91 | -13.71 | +8.06 | -0.55 | + 6.71 | + 0.51 6.40 |
| | Dec. 3 | 8.0 | 7.91 | -13.61 | +8.06 | -0.55 | + 7.13 | + 1.03 6.88 |
| | 4 | 8.5 | 8.40 | -13.58 | +8.06 | -0.55 | + 7.27 | + 1.20 7.20 |
| | 12 | 9.0 | 8.90 | -13.29 | +8.06 | -0.53 | + 8.20 | + 2.44 6.46 |
| | 20 | 11.0 | 10.88 | -13.02 | +8.05 | -0.47 | + 9.12 | + 3.68 7.20 |
| | 22 | 11.2 | 11.08 | -12.59 | +8.05 | -0.45 | + 9.30 | + 3.95 7.13 |
| | 24 | 10.5 | 10.38 | -12.89 | +8.05 | -0.43 | + 9.46 | + 4.19 6.19 |
| | 1729 | Jan. 25 | 14.0 | 13.84 | -11.74 | +8.05 | +0.17 | +10.50 |
| | Feb. 5 | 13.5 | 13.35 | -11.36 | +8.04 | +0.36 | +10.05 | + 7.09 6.26 |
| | 12 | 14.0 | 13.84 | -11.11 | +8.04 | +0.45 | + 9.56 | + 6.94 6.90 |
| 1730 | Mar. 8 | 12.2 | 12.07 | -10.30 | +8.02 | +0.54 | + 6.99 | + 5.25 6.82 |
| | 9 | 12.5 | 12.36 | -10.26 | +8.02 | +0.54 | + 6.88 | + 5.18 7.18 |
| | Aug. 26 | 2.7 | 2.67 | - 4.41 | +7.81 | +0.53 | - 8.77 | - 4.84 7.51 |
| | Dec. 21 | 23.3 | 23.04 | - 0.39 | +7.56 | -0.46 | + 9.17 | +15.89 7.15 |
| | Feb. 11 | 24.8 | 24.52 | + 1.44 | +7.41 | +0.44 | + 9.66 | +18.95 5.57 |
| | July 26 | 9.5 | 9.39 | + 7.11 | +6.85 | +0.11 | -10.55 | + 3.52 5.87 |
| | 28 | 11.0 | 10.88 | + 7.18 | +6.84 | +0.15 | -10.52 | + 3.65 7.23 |
| | 1731 | Jan. 14 | 36.0 | 35.60 | +13.06 | +6.09 | -0.05 | +10.55 |
| | | | | | | | | +29.65 5.95 |

9 AURIGÆ.

Assuming $P = 38^\circ 45' + 93''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Oct. 24 | 103.5 | 102.34 | -13.57 | +8.66 | +0.13 | - 5.03 | - 9.81 92.53 |
| | Nov. 27 | 99.0 | 97.90 | -13.00 | +8.67 | -0.47 | + 0.71 | - 4.09 93.81 |
| | Dec. 3 | 97.0 | 95.92 | -12.90 | +8.67 | -0.52 | + 1.76 | - 2.99 92.93 |
| | 1728 | Jan. 27 | 88.0 | 87.02 | -11.90 | +8.67 | +0.05 | + 9.36 |
| | Feb. 4 | 87.0 | 86.03 | -11.76 | +8.67 | +0.20 | + 9.80 | + 6.18 93.20 |
| | 6 | 87.5 | 86.52 | -11.73 | +8.67 | +0.24 | + 9.84 | + 6.91 92.94 |
| | 13 | 87.0 | 86.03 | -11.61 | +8.67 | +0.36 | + 9.95 | + 7.02 93.54 |
| | 14 | 86.5 | 85.53 | -11.59 | +8.67 | +0.37 | + 9.96 | + 7.37 93.40 |
| | 15 | 85.4 | 84.45 | -11.57 | +8.67 | +0.39 | + 9.97 | + 7.41 92.94 |
| | 16 | 87.0 | 86.03 | -11.56 | +8.67 | +0.40 | + 9.98 | + 7.46 91.91 |
| 1731 | 29 | 85.5 | 84.54 | -11.36 | +8.66 | +0.54 | + 9.84 | + 7.68 92.22 |
| | Mar. 3 | 86.0 | 85.04 | -11.33 | +8.66 | +0.55 | + 9.76 | + 7.64 92.68 |
| | Sept. 29 | 103.5 | 102.34 | - 7.78 | +8.42 | +0.50 | - 8.12 | - 6.98 95.36 |
| | Nov. 27 | 92.0 | 90.98 | - 6.79 | +8.29 | -0.48 | + 0.84 | + 1.86 92.84 |
| | 30 | 91.0 | 89.99 | - 6.74 | +8.29 | -0.50 | + 1.35 | + 2.40 92.39 |
| | Dec. 20 | 87.0 | 86.03 | - 6.40 | +8.24 | -0.55 | + 4.73 | + 6.02 92.05 |
| | 24 | 86.0 | 85.04 | - 6.33 | +8.23 | -0.53 | + 5.39 | + 6.76 91.80 |
| | 1733 | Jan. 29 | 73.5 | 72.68 | + 6.67 | +4.49 | +0.05 | + 9.37 |
| | Feb. 16 | 72.2 | 71.40 | + 6.97 | +4.33 | +0.38 | +10.01 | +21.69 93.09 |
| | 1740 | Jan. 31 | 65.8 | 65.07 | +19.27 | -1.31 | +0.31 | + 9.95 |
| | | | 26.7 | 26.40 | +62.36 | -5.12 | +0.11 | + 9.59 |

TABLE V.—*Reduction of the Wanstead Observations.*

α AURIGÆ.

Assuming $P = 44^\circ 15' + 148''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|--------|
| | Division of Microm. | Seconds | | | | | | | |
| 1727 Sept. 2 | 159.6 | 157.82 | -11".79 | +8".70 | +0".50 | -8".11 | -10".70 | 147.12 | |
| | 5 | 159.3 | 157.53 | -11.74 | +8.71 | +0.53 | -8.05 | -10.55 | 146.98 |
| | 6 | 159.5 | 157.72 | -11.73 | +8.71 | +0.54 | -8.02 | -10.50 | 147.22 |
| | 15 | 159.0 | 157.23 | -11.61 | +8.71 | +0.57 | -7.68 | -10.01 | 147.22 |
| | 16 | 159.7 | 157.92 | -11.60 | +8.71 | +0.57 | -7.64 | -9.96 | 147.96 |
| | 18 | 160.2 | 158.42 | -11.57 | +8.71 | +0.58 | -7.53 | -9.81 | 148.61 |
| | 19 | 159.3 | 157.53 | -11.56 | +8.71 | +0.57 | -7.47 | -9.74 | 147.79 |
| | 20 | 160.0 | 158.22 | -11.55 | +8.72 | +0.57 | -7.42 | -9.68 | 148.54 |
| | Oct. 4 | 158.3 | 156.54 | -11.35 | +8.72 | +0.47 | -6.38 | -8.54 | 148.00 |
| | 8 | 158.3 | 156.54 | -11.29 | +8.72 | +0.43 | -6.01 | -8.15 | 148.39 |
| | 24 | 155.0 | 153.27 | -11.08 | +8.73 | +0.16 | -4.27 | -6.46 | 146.81 |
| | 31 | 154.6 | 152.87 | -10.98 | +8.73 | +0.02 | -3.39 | -5.62 | 147.25 |
| Nov. 25 | 152.3 | 150.61 | -10.63 | +8.73 | -0.43 | +0.10 | -2.23 | 148.38 | |
| | 27 | 153.9 | 152.19 | -10.60 | +8.73 | -0.45 | +0.40 | -1.92 | 150.27 |
| | Dec. 16 | 148.9 | 147.24 | -10.35 | +8.73 | -0.57 | +3.07 | +0.88 | 148.12 |
| | 20 | 149.8 | 148.13 | -10.29 | +8.73 | -0.56 | +3.60 | +1.48 | 149.61 |
| | 23 | 149.8 | 148.13 | -10.25 | +8.73 | -0.55 | +3.98 | +1.91 | 150.04 |
| | 24 | 147.5 | 145.85 | -10.24 | +8.73 | -0.54 | +4.10 | +2.05 | 147.90 |
| | 1728 Jan. 1 | 148.4 | 146.75 | -10.07 | +8.73 | -0.44 | +5.41 | +3.63 | 150.38 |
| | 23 | 145.3 | 143.69 | -9.76 | +8.72 | -0.06 | +7.34 | +6.24 | 149.93 |
| | 27 | 144.3 | 142.70 | -9.71 | +8.72 | +0.01 | +7.58 | +6.60 | 149.30 |
| | Feb. 4 | 143.2 | 141.61 | -9.60 | +8.71 | +0.18 | +7.94 | +7.23 | 148.84 |
| | 6 | 143.0 | 141.41 | -9.57 | +8.71 | +0.22 | +8.01 | +7.37 | 148.78 |
| • | 7 | 143.6 | 142.00 | -9.56 | +8.71 | +0.24 | +8.04 | +7.43 | 149.43 |
| | 13 | 142.4 | 140.82 | -9.47 | +8.70 | +0.33 | +8.15 | +7.71 | 148.53 |
| | 14 | 142.7 | 141.11 | -9.46 | +8.70 | +0.35 | +8.16 | +7.75 | 148.86 |
| | 16 | 143.0 | 141.41 | -9.43 | +8.70 | +0.38 | +8.18 | +7.83 | 149.24 |
| | 25 | 142.5 | 140.91 | -9.31 | +8.70 | +0.49 | +8.12 | +8.00 | 148.91 |
| | 29 | 141.6 | 140.02 | -9.25 | +8.69 | +0.53 | +8.04 | +8.01 | 148.03 |
| | Mar. 3 | 141.7 | 140.12 | -9.24 | +8.69 | +0.54 | +8.01 | +8.00 | 148.12 |
| | 13 | 143.2 | 141.61 | -9.11 | +8.69 | +0.57 | +7.60 | +7.75 | 149.36 |
| | 17 | 143.5 | 141.90 | -9.05 | +8.69 | +0.56 | +7.37 | +7.57 | 149.47 |
| | 18 | 144.0 | 142.40 | -9.04 | +8.68 | +0.56 | +7.31 | +7.51 | 149.91 |
| | 19 | 143.9 | 142.30 | -9.02 | +8.68 | +0.56 | +7.25 | +7.47 | 149.77 |
| Apr. 30 | 23 | 143.3 | 141.71 | -8.97 | +8.68 | +0.54 | +6.96 | +7.21 | 148.92 |
| | 29 | 143.0 | 141.41 | -8.88 | +8.68 | +0.49 | +6.94 | +6.78 | 148.19 |
| | 1 | 144.8 | 143.19 | -8.87 | +8.68 | +0.48 | +6.40 | +6.69 | 149.88 |
| | 2 | 144.7 | 142.80 | -8.84 | +8.68 | +0.45 | +6.22 | +6.51 | 149.31 |
| | 27 | 147.7 | 146.05 | -8.48 | +8.65 | +0.02 | +3.35 | +3.54 | 149.59 |
| | May 4 | 148.1 | 146.45 | -8.39 | +8.64 | -0.12 | +2.44 | +2.57 | 149.02 |
| | 9 | 149.0 | 147.34 | -8.32 | +8.63 | -0.21 | +1.78 | +1.88 | 149.22 |
| June 16 | 18 | 150.8 | 149.12 | -8.19 | +8.62 | -0.36 | +0.56 | +0.63 | 149.75 |
| | 19 | 149.5 | 147.83 | -8.18 | +8.62 | -0.37 | +0.42 | +0.49 | 148.32 |
| | 21 | 152.0 | 150.31 | -8.15 | +8.61 | -0.40 | +0.14 | +0.20 | 150.51 |
| | 18 | 155.2 | 153.47 | -7.77 | +8.58 | -0.57 | -3.30 | -3.09 | 149.19 |
| | 23 | 156.0 | 154.26 | -7.70 | +8.57 | -0.54 | -4.14 | -3.81 | 150.45 |
| July 3 | 28 | 156.0 | 154.26 | -7.63 | +8.56 | -0.51 | -4.72 | -4.30 | 149.96 |
| | 3 | 156.2 | 154.46 | -7.56 | +8.56 | -0.45 | -5.26 | -4.71 | 149.75 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|-------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 July | 4 | 156.8 | 155.05 | -7.55 | +8.56 | -0.44 | -5.36 | - 4.79 150.26 |
| | 5 | 155.0 | 153.27 | -7.53 | +8.55 | -0.43 | -5.46 | - 4.87 148.40 |
| | 6 | 156.5 | 154.75 | -7.52 | +8.55 | -0.42 | -5.56 | - 4.95 149.80 |
| | 15 | 155.0 | 153.27 | -7.39 | +8.54 | -0.29 | -6.36 | - 5.50 147.77 |
| | 16 | 155.5 | 153.76 | -7.38 | +8.54 | -0.28 | -6.48 | - 5.60 148.16 |
| | 17 | 156.0 | 154.26 | -7.36 | +8.54 | -0.27 | -6.56 | - 5.65 148.61 |
| | 23 | 155.5 | 153.76 | -7.28 | +8.52 | -0.15 | -7.02 | - 5.93 147.83 |
| | 24 | 156.0 | 154.26 | -7.27 | +8.52 | -0.13 | -7.09 | - 5.97 148.29 |
| | 30 | 156.7 | 154.95 | -7.19 | +8.51 | -0.02 | -7.46 | - 6.16 148.79 |
| | 31 | 155.5 | 153.76 | -7.18 | +8.51 | 0.00 | -7.52 | - 6.19 147.57 |
| | Aug. 7 | 155.5 | 153.76 | -7.08 | +8.49 | +0.13 | -7.84 | - 6.30 147.46 |
| | 9 | 155.8 | 154.06 | -7.05 | +8.49 | +0.17 | -7.92 | - 6.31 147.75 |
| | 14 | 154.5 | 152.77 | -6.98 | +8.48 | +0.26 | -8.06 | - 6.30 146.47 |
| Sept. | 2 | 153.7 | 151.99 | -6.71 | +8.44 | +0.51 | -8.05 | - 5.81 146.18 |
| | 6 | 153.5 | 151.79 | -6.66 | +8.43 | +0.54 | -8.00 | - 5.69 146.10 |
| | 7 | 153.5 | 151.79 | -6.65 | +8.43 | +0.55 | -7.97 | - 5.64 146.15 |
| | 11 | 153.5 | 151.79 | -6.60 | +8.42 | +0.56 | -7.83 | - 5.45 146.34 |
| | Oct. 3 | 152.0 | 150.31 | -6.29 | +8.38 | +0.47 | -6.40 | - 3.84 146.47 |
| Oct. | 7 | 149.0 | 147.34 | -6.23 | +8.37 | +0.43 | -6.03 | - 3.46 143.88 |
| | 11 | 148.7 | 147.04 | -6.17 | +8.36 | +0.37 | -5.64 | - 3.08 143.96 |
| | 12 | 149.5 | 147.83 | -6.16 | +8.36 | +0.36 | -5.54 | - 2.98 144.85 |
| Nov. | 27 | 146.5 | 144.86 | -5.54 | +8.24 | -0.46 | +0.50 | + 2.74 147.60 |
| | 30 | 146.0 | 144.37 | -5.50 | +8.23 | -0.49 | +0.93 | + 3.17 147.54 |
| | Dec. 12 | 144.5 | 142.89 | -5.33 | +8.20 | -0.56 | +2.62 | + 4.93 147.82 |
| 1729 Jan. | 20 | 142.3 | 140.72 | -5.22 | +8.18 | -0.56 | +3.69 | + 6.09 146.81 |
| | 24 | 142.0 | 140.42 | -5.16 | +8.17 | -0.54 | +4.20 | + 6.67 147.09 |
| | 27 | 141.0 | 139.43 | -5.12 | +8.16 | -0.52 | +4.57 | + 7.09 146.52 |
| | 4 | 141.0 | 139.43 | -4.98 | +8.14 | -0.42 | +5.60 | + 8.34 147.77 |
| | 30 | 138.4 | 136.86 | -4.63 | +8.06 | +0.06 | +7.67 | +11.16 148.02 |
| | Feb. 5 | 138.0 | 136.46 | -4.56 | +8.04 | +0.18 | +7.93 | +11.59 148.05 |
| | 12 | 137.0 | 135.47 | -4.45 | +8.01 | +0.30 | +8.11 | +11.97 147.44 |
| | 17 | 137.2 | 135.67 | -4.38 | +8.00 | +0.38 | +8.17 | +12.17 147.84 |
| | 18 | 137.8 | 136.26 | -4.37 | +7.99 | +0.40 | +8.18 | +12.20 148.46 |
| | 23 | 137.0 | 135.47 | -4.29 | +7.98 | +0.46 | +8.17 | +12.32 147.79 |
| Mar. | 25 | 137.7 | 136.16 | -4.26 | +7.97 | +0.48 | +8.15 | +12.34 148.50 |
| | 26 | 136.7 | 135.18 | -4.25 | +7.97 | +0.49 | +8.13 | +12.34 147.52 |
| | 7 | 136.3 | 134.79 | -4.12 | +7.94 | +0.56 | +7.89 | +12.27 147.06 |
| | 8 | 137.3 | 135.77 | -4.11 | +7.94 | +0.56 | +7.85 | +12.24 148.01 |
| | 9 | 137.5 | 135.96 | -4.09 | +7.93 | +0.57 | +7.81 | +12.22 148.18 |
| | 10 | 137.3 | 135.77 | -4.08 | +7.93 | +0.57 | +7.76 | +12.18 147.95 |
| | 11 | 138.0 | 136.46 | -4.07 | +7.93 | +0.58 | +7.71 | +12.15 148.61 |
| | 20 | 137.7 | 136.16 | -3.95 | +7.90 | +0.56 | +7.20 | +11.71 147.87 |
| | 21 | 138.0 | 136.46 | -3.94 | +7.90 | +0.56 | +7.13 | +11.65 148.11 |
| | Apr. 5 | 139.0 | 137.45 | -3.73 | +7.85 | +0.40 | +5.87 | +10.39 147.84 |
| May | 29 | 143.0 | 141.41 | -3.40 | +7.75 | -0.02 | +3.13 | + 7.46 148.87 |
| | 25 | 146.0 | 144.37 | -3.02 | +7.66 | -0.45 | -0.37 | + 3.82 148.19 |
| | June 6 | 148.4 | 146.75 | -2.87 | +7.61 | -0.55 | -1.98 | + 2.21 148.96 |
| | 11 | 149.0 | 147.34 | -2.81 | +7.59 | -0.57 | -2.64 | + 1.57 148.91 |
| | 14 | 148.7 | 147.04 | -2.77 | +7.58 | -0.57 | -3.02 | + 1.22 148.26 |
| June | 15 | 149.2 | 147.54 | -2.76 | +7.58 | -0.57 | -3.14 | + 1.11 148.65 |
| | 17 | 149.5 | 147.83 | -2.73 | +7.57 | -0.57 | -3.38 | + 0.89 148.72 |
| | 18 | 150.0 | 148.33 | -2.72 | +7.57 | -0.57 | -3.51 | + 0.77 149.10 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|-------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1729 July | 1 | 150.5 | 148.82 | -2.53 | +7.51 | -0.48 | -5.02 | - 0.52 148.30 |
| | 4 | 150.2 | 148.53 | -2.49 | +7.50 | -0.45 | -5.33 | - 0.77 147.76 |
| | 5 | 150.0 | 148.33 | -2.48 | +7.50 | -0.44 | -5.44 | - 0.86 147.47 |
| | 7 | 151.0 | 149.32 | -2.45 | +7.49 | -0.41 | -5.63 | - 1.00 148.32 |
| | 10 | 148.5 | 146.84 | -2.42 | +7.48 | -0.37 | -5.93 | - 1.24 145.60 |
| | 11 | 152.0 | 150.31 | -2.41 | +7.47 | -0.36 | -6.02 | - 1.32 148.99 |
| | 12 | 151.0 | 149.32 | -2.39 | +7.47 | -0.34 | -6.11 | - 1.37 147.95 |
| | 23 | 153.5 | 151.79 | -2.22 | +7.43 | -0.15 | -7.00 | - 1.94 149.85 |
| | 25 | 153.5 | 151.79 | -2.19 | +7.42 | -0.12 | -7.13 | - 2.02 149.77 |
| | Aug. 1 | 152.7 | 151.00 | -2.11 | +7.39 | +0.01 | -7.55 | - 2.26 148.74 |
| | 18 | 152.5 | 150.80 | -1.87 | +7.31 | +0.32 | -8.13 | - 2.37 148.43 |
| | 22 | 150.8 | 149.12 | -1.81 | +7.30 | +0.37 | -8.18 | - 2.32 146.80 |
| | 24 | 150.5 | 148.82 | -1.78 | +7.29 | +0.41 | -8.18 | - 2.26 146.56 |
| | 31 | 152.0 | 150.31 | -1.69 | +7.25 | +0.49 | -8.14 | - 2.09 148.22 |
| Sept. | 2 | 150.5 | 148.82 | -1.66 | +7.24 | +0.51 | -8.10 | - 2.01 146.81 |
| | 4 | 152.3 | 150.61 | -1.63 | +7.23 | +0.52 | -8.06 | - 1.94 148.67 |
| | 11 | 149.5 | 147.83 | -1.54 | +7.21 | +0.56 | -7.84 | - 1.61 146.22 |
| | 12 | 147.5 | 145.85 | -1.53 | +7.20 | +0.57 | -7.79 | - 1.55 144.30 |
| | 13 | 149.2 | 147.54 | -1.51 | +7.20 | +0.57 | -7.75 | - 1.49 146.05 |
| | 14 | 148.5 | 146.84 | -1.50 | +7.19 | +0.57 | -7.71 | - 1.45 145.39 |
| | 20 | 149.7 | 148.03 | -1.42 | +7.17 | +0.57 | -7.38 | - 1.06 146.97 |
| | 30 | 149.0 | 147.34 | -1.28 | +7.12 | +0.51 | -6.67 | - 0.32 147.02 |
| | Oct. 19 | 146.5 | 144.86 | -1.02 | +7.03 | +0.24 | -4.80 | + 1.45 146.31 |
| | 31 | 146.0 | 144.37 | -0.85 | +6.98 | +0.01 | -3.32 | + 2.82 147.19 |
| Dec. | 6 | 142.5 | 140.91 | -0.36 | +6.80 | -0.55 | +1.75 | + 7.64 148.55 |
| | 13 | 140.2 | 138.64 | -0.26 | +6.76 | -0.57 | +2.72 | + 8.65 147.29 |
| | 21 | 138.7 | 137.15 | -0.15 | +6.72 | -0.56 | +3.79 | + 9.80 146.95 |
| | 1730 Feb. 11 | 135.3 | 133.80 | +0.58 | +6.44 | +0.28 | +8.09 | +15.39 149.19 |
| | Mar. 4 | 133.5 | 132.01 | +0.87 | +6.33 | +0.54 | +8.00 | +15.74 147.75 |
| | 7 | 134.0 | 132.51 | +0.91 | +6.31 | +0.56 | +7.90 | +15.68 148.19 |
| | 14 | 134.2 | 132.71 | +1.00 | +6.27 | +0.57 | +7.57 | +15.41 148.12 |
| | June 5 | 142.3 | 140.72 | +2.15 | +5.79 | -0.54 | -1.81 | + 5.59 146.31 |
| | 7 | 144.7 | 143.09 | +2.18 | +5.78 | -0.55 | -2.08 | + 5.33 148.42 |
| | 17 | 146.0 | 144.37 | +2.31 | +5.72 | -0.57 | -3.36 | + 4.10 148.47 |
| July | 30 | 148.0 | 146.35 | +2.51 | +5.64 | -0.50 | -4.88 | + 2.77 149.12 |
| | 25 | 149.3 | 147.64 | +2.84 | +5.49 | -0.12 | -7.11 | + 1.10 148.74 |
| | 26 | 148.5 | 146.84 | +2.85 | +5.48 | -0.09 | -7.18 | + 1.06 147.90 |
| | 28 | 150.2 | 148.53 | +2.88 | +5.47 | -0.06 | -7.31 | + 0.98 149.51 |
| | Aug. 5 | 149.0 | 147.34 | +2.99 | +5.42 | +0.09 | -7.73 | + 0.77 148.11 |
| | 16 | 149.0 | 147.34 | +3.14 | +5.35 | +0.29 | -8.09 | + 0.69 148.03 |
| | 17 | 148.5 | 146.84 | +3.15 | +5.34 | +0.31 | -8.11 | + 0.69 147.53 |
| | 20 | 148.5 | 146.84 | +3.20 | +5.32 | +0.35 | -8.16 | + 0.71 147.55 |
| | 23 | 147.5 | 145.85 | +3.24 | +5.31 | +0.39 | -8.18 | + 0.76 146.61 |
| | 24 | 149.0 | 147.34 | +3.25 | +5.30 | +0.41 | -8.18 | + 0.78 148.12 |
| Sept. | 27 | 148.0 | 146.35 | +3.29 | +5.28 | +0.45 | -8.17 | + 0.85 147.20 |
| | 29 | 147.0 | 145.36 | +3.32 | +5.27 | +0.47 | -8.16 | + 0.90 146.26 |
| | 31 | 146.5 | 144.86 | +3.35 | +5.25 | +0.49 | -8.14 | + 0.95 145.81 |
| | 4 | 147.3 | 145.66 | +3.41 | +5.23 | +0.52 | -8.06 | + 1.10 146.76 |
| | 6 | 146.5 | 144.86 | +3.44 | +5.22 | +0.54 | -8.01 | + 1.19 146.05 |
| | 9 | 146.5 | 144.86 | +3.47 | +5.20 | +0.56 | -7.92 | + 1.31 146.17 |
| | 19 | 147.7 | 146.05 | +3.61 | +5.13 | +0.57 | -7.46 | + 1.85 147.90 |
| 1731 Jan. | 4 | 135.5 | 133.99 | +5.09 | +4.40 | -0.41 | +5.54 | +14.62 148.61 |
| | 7 | 135.3 | 133.80 | +5.13 | +4.38 | -0.37 | +5.85 | +14.99 148.79 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|----------------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1731 | Jan. 14 | 134.5 | 133.00 | + 5.26 | + 4.32 | - 0.25 | + 6.51 | + 15.84 148.84 |
| | 29 | 133.7 | 132.21 | + 5.44 | + 4.21 | + 0.03 | + 7.59 | + 17.27 149.48 |
| | Feb. 4 | 133.5 | 132.01 | + 5.51 | + 4.16 | + 0.15 | + 7.89 | + 17.69 149.70 |
| | 16 | 134.0 | 132.51 | + 5.68 | + 4.06 | + 0.36 | + 8.16 | + 18.26 150.77 |
| | 17 | 131.5 | 130.03 | + 5.69 | + 4.05 | + 0.37 | + 8.16 | + 18.27 148.30 |
| | May 8 | 138.2 | 136.66 | + 6.88 | + 3.47 | - 0.18 | + 2.02 | + 12.19 148.85 |
| | Aug. 20 | 146.0 | 144.37 | + 8.23 | + 2.78 | + 0.35 | - 8.15 | + 3.21 147.58 |
| | 21 | 146.5 | 144.86 | + 8.24 | + 2.77 | + 0.36 | - 8.16 | + 3.21 148.07 |
| | 28 | 146.5 | 144.86 | + 8.34 | + 2.73 | + 0.46 | - 8.17 | + 3.36 148.22 |
| | 30 | 146.0 | 144.37 | + 8.37 | + 2.72 | + 0.47 | - 8.16 | + 3.40 147.77 |
| | 31 | 145.5 | 143.88 | + 8.38 | + 2.71 | + 0.48 | - 8.14 | + 3.43 147.31 |
| | Sept. 1 | 145.7 | 144.08 | + 8.40 | + 2.71 | + 0.49 | - 8.13 | + 3.47 147.55 |
| 1732 | 20 | 146.5 | 144.86 | + 8.66 | + 2.59 | + 0.56 | - 7.42 | + 4.39 149.25 |
| | 21 | 144.5 | 142.89 | + 8.67 | + 2.58 | + 0.56 | - 7.36 | + 4.45 147.34 |
| | 23 | 145.3 | 143.69 | + 8.69 | + 2.57 | + 0.55 | - 7.23 | + 4.58 148.27 |
| | Oct. 3 | 145.5 | 143.88 | + 8.84 | + 2.52 | + 0.48 | - 6.47 | + 5.37 149.25 |
| | Jan. 15 | 134.0 | 132.51 | + 10.30 | + 1.62 | - 0.22 | + 6.74 | + 18.44 150.95 |
| | 19 | 134.0 | 132.51 | + 10.35 | + 1.59 | - 0.14 | + 7.05 | + 18.85 151.36 |
| | Apr. 18 | 133.8 | 132.31 | + 11.58 | + 0.83 | + 0.18 | + 4.45 | + 17.04 149.35 |
| | 28 | 138.0 | 136.46 | + 11.72 | + 0.75 | 0.00 | + 3.23 | + 15.70 152.16 |
| | May 3 | 136.5 | 134.98 | + 11.78 | + 0.70 | - 0.10 | + 2.53 | + 14.91 149.89 |
| | 1733 Feb. 11 | 127.2 | 125.79 | + 15.68 | - 1.65 | + 0.28 | + 8.09 | + 22.40 148.19 |
| | 1734 June 22 | 139.0 | 137.45 | + 22.51 | - 5.35 | - 0.55 | - 3.95 | + 12.66 150.11 |
| | 23 | 139.0 | 137.45 | + 22.52 | - 5.36 | - 0.55 | - 4.07 | + 12.54 149.99 |
| 1735 | July 14 | 139.5 | 137.94 | + 22.82 | - 5.50 | - 0.31 | - 6.25 | + 10.76 148.70 |
| | 22 | 140.5 | 138.93 | + 22.93 | - 5.56 | - 0.17 | - 6.90 | + 10.30 149.23 |
| | 27 | 140.0 | 138.44 | + 23.00 | - 5.59 | - 0.08 | - 7.23 | + 10.10 148.54 |
| | Aug. 14 | 137.0 | 135.47 | + 23.24 | - 5.70 | + 0.25 | - 8.04 | + 9.75 145.22 |
| | 17 | 140.0 | 138.44 | + 23.28 | - 5.72 | + 0.31 | - 8.10 | + 9.77 148.21 |
| | 18 | 139.2 | 137.65 | + 23.29 | - 5.72 | + 0.32 | - 8.12 | + 9.77 147.42 |
| 1736 | Jan. 2 | 124.0 | 122.62 | + 25.16 | - 6.56 | - 0.45 | + 5.30 | + 23.45 146.07 |
| | 5 | 125.7 | 124.30 | + 25.21 | - 6.58 | - 0.41 | + 5.65 | + 23.87 148.17 |
| 1737 | Jan. 20 | 115.8 | 114.51 | + 35.46 | - 6.66 | - 0.15 | + 7.02 | + 35.67 150.18 |
| | 29 | 114.5 | 113.22 | + 35.57 | - 6.71 | + 0.03 | + 7.59 | + 36.48 149.70 |
| | 30 | 115.2 | 113.92 | + 35.58 | - 6.71 | + 0.06 | + 7.65 | + 36.58 150.50 |
| 1738 | June 30 | 120.0 | 118.66 | + 42.64 | - 8.02 | - 0.50 | - 4.86 | + 29.26 147.92 |
| | July 11 | 120.0 | 118.66 | + 42.80 | - 7.98 | - 0.36 | - 5.97 | + 28.49 147.15 |
| | 1739 Jan. 10 | 107.2 | 106.01 | + 45.29 | - 7.19 | - 0.34 | + 6.12 | + 43.88 149.89 |
| 1740 | 25 | 100.0 | 98.89 | + 45.40 | - 7.11 | - 0.05 | + 7.32 | + 45.56 144.45 |
| | Feb. 13 | 102.3 | 101.16 | + 45.75 | - 7.01 | + 0.31 | + 8.11 | + 47.16 148.32 |
| | 14 | 102.0 | 100.86 | + 45.76 | - 7.00 | + 0.33 | + 8.12 | + 47.21 148.07 |
| | 15 | 101.7 | 100.57 | + 45.78 | - 7.00 | + 0.34 | + 8.13 | + 47.25 147.82 |
| 1741 | 17 | 102.2 | 101.06 | + 45.81 | - 6.99 | + 0.37 | + 8.15 | + 47.34 148.40 |
| | Jan. 31 | 96.8 | 95.72 | + 50.56 | - 4.88 | + 0.10 | + 7.75 | + 53.53 149.25 |
| | Feb. 9 | 98.3 | 97.21 | + 50.69 | - 4.82 | + 0.27 | + 8.06 | + 54.20 151.41 |
| | June 13 | 106.0 | 104.82 | + 52.39 | - 3.94 | - 0.57 | - 2.89 | + 44.99 149.81 |
| 1742 Feb. 6 | 90.7 | 89.69 | + 55.61 | - 1.62 | + 0.20 | + 7.93 | + 62.12 151.81 | |

TABLE V.—*Reduction of the Wanstead Observations.*

18 CAMELOPARDI.

Assuming $P = 35^\circ 0' - 43''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 |
|--------------------|---------------------|----------|------------|----------------|----------------|----------------|----------------------|-----------------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Sept. 25 | 32.2 | 31.84 | - 9.46 | + 8.78 | + 0.55 | - 10.75 | - 10.88 42.72 |
| | Oct. 8 | 33.0 | 32.63 | - 9.31 | + 8.79 | + 0.44 | - 9.60 | - 9.68 42.31 |
| | 24 | 36.4 | 36.00 | - 9.13 | + 8.79 | + 0.18 | - 7.54 | - 7.70 43.70 |
| | 31 | 38.4 | 37.98 | - 9.05 | + 8.79 | + 0.04 | - 6.45 | - 6.67 44.65 |
| | Dec. 3 | 43.3 | 42.82 | - 8.68 | + 8.77 | - 0.51 | - 0.16 | - 0.58 43.40 |
| | 1728 | Jan. 1 | 50.3 | 49.74 | - 8.30 | + 8.76 | - 0.47 | + 5.97 + 5.96 43.78 |
| | | 23 | 54.0 | 53.40 | - 8.05 | + 8.74 | - 0.11 | + 9.22 + 9.80 43.60 |
| | | 27 | 55.0 | 54.39 | - 8.00 | + 8.74 | - 0.03 | + 9.68 + 10.39 44.00 |
| | | Feb. 4 | 55.0 | 54.39 | - 7.91 | + 8.73 | + 0.13 | + 10.45 + 11.40 42.99 |
| | | 7 | 54.7 | 54.09 | - 7.88 | + 8.73 | + 0.18 | + 10.68 + 11.71 42.38 |
| | | 13 | 56.0 | 55.38 | - 7.81 | + 8.72 | + 0.31 | + 11.04 + 12.26 43.12 |
| | 1729 | 14 | 56.0 | 55.38 | - 7.80 | + 8.72 | + 0.33 | + 11.10 + 12.35 43.03 |
| | | 16 | 57.0 | 56.37 | - 7.78 | + 8.72 | + 0.36 | + 11.18 + 12.48 43.89 |
| | | 29 | 57.0 | 56.37 | - 7.76 | + 8.71 | + 0.51 | + 11.44 + 13.02 43.35 |
| | | Mar. 3 | 57.3 | 56.67 | - 7.61 | + 8.70 | + 0.53 | + 11.43 + 13.05 43.62 |
| | | Sept. 24 | 33.0 | 32.63 | - 5.29 | + 8.34 | + 0.56 | - 10.78 - 7.17 39.80 |
| | | 29 | 35.0 | 34.61 | - 5.23 | + 8.33 | + 0.53 | - 10.39 - 6.76 41.37 |
| 1730 | Oct. 3 | 37.0 | 36.59 | - 5.19 | + 8.32 | + 0.49 | - 10.04 - 6.42 43.01 | |
| | 7 | 35.0 | 34.61 | - 5.15 | + 8.31 | + 0.45 | - 9.67 - 6.04 40.65 | |
| | 11 | 34.0 | 33.62 | - 5.10 | + 8.30 | + 0.40 | - 9.19 - 5.59 39.21 | |
| | 12 | 37.5 | 37.08 | - 5.09 | + 8.30 | + 0.38 | - 9.08 - 5.49 42.57 | |
| | Sept. 30 | 41.0 | 40.54 | - 1.17 | + 6.94 | + 0.52 | - 10.33 - 4.04 44.58 | |
| | Oct. 10 | 40.0 | 39.55 | - 0.95 | + 6.89 | + 0.41 | - 9.33 - 2.98 42.53 | |
| 1731 | 19 | 42.5 | 42.02 | - 0.84 | + 6.85 | + 0.27 | - 8.29 - 2.01 44.03 | |
| | Dec. 21 | 53.5 | 52.90 | - 0.12 | + 6.52 | - 0.56 | + 3.47 + 9.31 43.59 | |
| | 1732 | Feb. 11 | 65.0 | 64.28 | + 12.90 | - 2.02 | + 0.26 + 10.85 | + 21.99 42.29 |
| | 1733 | Jan. 11 | 83.0 | 82.08 | + 37.20 | - 6.99 | - 0.34 + 7.29 | + 37.16 44.92 |
| | | 25 | 85.3 | 84.35 | + 37.36 | - 6.91 | - 0.07 + 9.27 | + 39.65 44.70 |
| | | Feb. 15 | 86.3 | 85.34 | + 37.59 | - 6.80 | + 0.34 + 11.03 | + 42.16 43.18 |
| 1740 | Jan. 31 | 92.0 | 90.98 | + 41.53 | - 4.59 | + 0.06 + 10.05 | + 47.05 42.93 | |
| | Feb. 9 | 91.5 | 90.48 | + 41.63 | - 4.53 | + 0.24 + 10.79 | + 48.13 42.35 | |

δ AURIGÆ.

Assuming $P = 35^\circ 45' + 13''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|----------------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Sept. 25 | 18.4 | 18.20 | - 4.89 | + 8.83 | + 0.57 | - 10.26 | - 5.75 12.45 |
| | Oct. 8 | 17.0 | 16.81 | - 4.82 | + 8.83 | + 0.48 | - 9.59 | - 5.10 11.71 |
| | 1728 | Jan. 23 | 2.0 | 1.98 | - 4.15 | + 8.69 | - 0.16 | + 7.21 + 11.59 13.57 |
| | | 27 | 1.5 | 1.48 | - 4.12 | + 8.68 | - 0.08 | + 7.72 + 12.20 13.68 |
| | | Feb. 4 | 0.0 | 0.00 | - 4.07 | + 8.67 | + 0.08 | + 8.63 + 13.31 13.31 |
| | | 7 | 0.5 | 0.49 | - 4.05 | + 8.66 | + 0.14 | + 8.92 + 13.67 13.18 |
| 1730 | 13 | 1.7 | 1.68 | - 4.03 | + 8.65 | + 0.25 | + 9.44 | + 14.31 12.63 |
| | 14 | 1.0 | 0.99 | - 4.02 | + 8.64 | + 0.27 | + 9.52 | + 14.41 13.42 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 | Feb. 15 | 2.0 | 1.98 | — 4.02 | + 8.64 | + 0.29 | + 9.59 | + 14.50 12.52 |
| | 16 | 1.2 | 1.18 | — 4.01 | + 8.64 | + 0.31 | + 9.67 | + 14.61 13.43 |
| | 29 | 3.5 | 3.46 | — 3.94 | + 8.61 | + 0.48 | + 10.26 | + 15.41 11.95 |
| | Mar. 3 | 2.3 | 2.28 | — 3.93 | + 8.61 | + 0.50 | + 10.29 | + 15.47 13.19 |
| | 13 | 2.4 | 2.38 | — 3.87 | + 8.59 | + 0.57 | + 10.34 | + 15.63 13.25 |
| | Sept. 24 | 19.5 | 19.28 | — 2.73 | + 8.08 | + 0.57 | — 10.43 | — 4.51 14.77 |
| | 29 | 17.5 | 17.38 | — 2.70 | + 8.06 | + 0.55 | — 10.11 | — 4.20 13.10 |
| | Oct. 7 | 18.8 | 18.59 | — 2.65 | + 8.04 | + 0.49 | — 9.61 | — 3.73 14.86 |
| | 12 | 17.8 | 17.60 | — 2.62 | + 8.02 | + 0.43 | — 9.31 | — 3.48 14.12 |
| | 1729 Jan. 4 | 2.0 | 1.98 | — 2.12 | + 7.76 | — 0.48 | + 4.10 | + 9.26 11.24 |
| 1730 | Mar. 8 | 4.7 | 4.65 | — 1.75 | + 7.49 | + 0.54 | + 10.40 | + 16.68 12.03 |
| | 11 | 4.5 | 4.45 | — 1.73 | + 7.48 | + 0.56 | + 10.42 | + 16.73 12.28 |
| | 20 | 4.5 | 4.45 | — 1.67 | + 7.44 | + 0.58 | + 10.29 | + 16.64 12.19 |
| | Oct. 1 | 17.0 | 16.81 | — 0.54 | + 6.47 | + 0.54 | — 9.99 | — 3.52 13.29 |
| | 5 | 16.5 | 16.31 | — 0.51 | + 6.45 | + 0.51 | — 9.77 | — 3.32 12.99 |
| | 19 | 15.0 | 14.83 | — 0.43 | + 6.37 | + 0.33 | — 8.62 | — 2.35 12.48 |
| | Dec. 21 | 5.5 | 5.43 | — 0.06 | + 6.00 | — 0.57 | + 1.39 | + 6.76 12.19 |
| | Mar. 14 | 3.5 | 3.46 | + 0.43 | + 5.48 | + 0.57 | + 10.41 | + 16.89 13.43 |
| | 1733 Feb. 11 | 2.0 | 1.98 | + 6.64 | — 2.83 | + 0.20 | + 9.16 | + 13.17 11.19 |
| | 1739 Jan. 10 | 1.3 | 1.29 | + 19.05 | — 6.51 | — 0.41 | + 4.95 | + 17.08 15.78 |
| 1740 | Feb. 25 | 5.0 | 4.94 | + 19.14 | — 6.42 | — 0.14 | + 7.20 | + 19.78 14.84 |
| | 13 | 7.0 | 6.92 | + 19.24 | — 6.30 | + 0.24 | + 9.27 | + 22.45 15.53 |
| | 15 | 7.3 | 7.22 | + 19.25 | — 6.29 | + 0.27 | + 9.42 | + 22.65 15.43 |
| | 17 | 6.8 | 6.72 | + 19.27 | — 6.28 | + 0.31 | + 9.57 | + 22.87 16.15 |
| | Jan. 31 | 9.0 | 8.90 | + 21.25 | — 3.90 | — 0.02 | + 8.16 | + 25.49 16.59 |
| 1747 Mar. 10 | 39.2 | 38.77 | + 36.78 | + 8.28 | + 0.56 | + 10.38 | + 56.03 | 17.26 |

35 CAMELOPARDI.

Assuming $P = 38^\circ 25' + 72''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Sept. 25 | 76.3 | 75.45 | — 3.24 | + 8.83 | + 0.57 | — 9.45 | — 3.29 72.16 |
| | Oct. 24 | 74.3 | 73.48 | — 3.12 | + 8.82 | + 0.26 | — 7.64 | — 1.68 71.80 |
| | 31 | 74.4 | 73.58 | — 3.09 | + 8.81 | + 0.12 | — 6.89 | — 1.05 72.53 |
| | Dec. 3 | 69.8 | 69.02 | — 2.97 | + 8.76 | — 0.47 | — 2.16 | + 3.16 72.18 |
| | 23 | 67.2 | 66.45 | — 2.89 | + 8.73 | — 0.57 | + 1.15 | + 6.42 72.87 |
| | 1728 Jan. 1 | 65.1 | 64.38 | — 2.84 | + 8.72 | — 0.53 | + 2.88 | + 8.23 72.61 |
| | 23 | 61.5 | 60.81 | — 2.75 | + 8.68 | — 0.21 | + 6.12 | + 11.84 72.65 |
| | 27 | 60.5 | 59.82 | — 2.73 | + 8.67 | — 0.13 | + 6.66 | + 12.47 72.29 |
| | Feb. 4 | 58.0 | 57.35 | — 2.70 | + 8.66 | + 0.03 | + 7.54 | + 13.53 70.88 |
| | 7 | 58.7 | 58.04 | — 2.69 | + 8.65 | + 0.09 | + 7.82 | + 13.87 71.91 |
| 1729 | 13 | 59.3 | 58.64 | — 2.68 | + 8.64 | + 0.21 | + 8.36 | + 14.53 73.17 |
| | 14 | 58.7 | 58.04 | — 2.67 | + 8.64 | + 0.23 | + 8.44 | + 14.64 72.68 |
| | 15 | 57.0 | 56.37 | — 2.67 | + 8.64 | + 0.24 | + 8.52 | + 14.73 71.10 |
| | 16 | 59.8 | 59.13 | — 2.67 | + 8.63 | + 0.26 | + 8.60 | + 14.82 73.95 |
| | 29 | 57.2 | 56.57 | — 2.61 | + 8.61 | + 0.46 | + 9.31 | + 15.77 72.34 |
| | Mar. 3 | 57.2 | 56.57 | — 2.60 | + 8.60 | + 0.49 | + 9.41 | + 15.90 72.47 |
| | 12 | 58.4 | 57.75 | — 2.56 | + 8.59 | + 0.56 | + 9.55 | + 16.14 73.89 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|---------|-------|
| | Division of Microm. | Seconds | | | | | | | | |
| 1728 | Mar. 13 | 58.5 | 57.84 | — 2.56 | + 8.59 | + 0.56 | + 9.55 | + 16.14 | 73.98 | |
| | Sept. 24 | 75.8 | 74.95 | — 1.81 | + 8.06 | + 0.57 | — 9.46 | — 2.64 | 72.31 | |
| | Oct. 7 | 76.0 | 75.15 | — 1.76 | + 8.01 | + 0.50 | — 8.92 | — 2.17 | 72.98 | |
| | 12 | 74.5 | 73.67 | — 1.74 | + 7.99 | + 0.44 | — 8.60 | — 1.91 | 71.76 | |
| | Jan. 4 | 63.0 | 62.30 | — 1.39 | + 7.68 | — 0.48 | + 3.41 | + 9.22 | 71.52 | |
| | Mar. 8 | 56.5 | 55.87 | — 1.16 | + 7.41 | + 0.53 | + 9.51 | + 16.29 | 72.16 | |
| | 9 | 57.0 | 56.37 | — 1.15 | + 7.41 | + 0.54 | + 9.53 | + 16.33 | 72.70 | |
| | 11 | 56.8 | 56.17 | — 1.14 | + 7.40 | + 0.56 | + 9.54 | + 16.36 | 72.53 | |
| | Sept. 30 | 77.5 | 76.63 | — 0.36 | + 6.37 | + 0.55 | — 9.28 | — 2.72 | 73.91 | |
| | Oct. 1 | 76.0 | 75.15 | — 0.35 | + 6.36 | + 0.54 | — 9.25 | — 2.70 | 72.45 | |
| 1729 | 5 | 75.3 | 74.46 | — 0.34 | + 6.34 | + 0.51 | — 9.16 | — 2.65 | 71.81 | |
| | 10 | 76.0 | 75.15 | — 0.32 | + 6.31 | + 0.46 | — 8.76 | — 2.31 | 72.84 | |
| | 19 | 74.5 | 73.67 | — 0.28 | + 6.26 | + 0.34 | — 8.09 | — 1.77 | 71.90 | |
| | Dec. 21 | 66.2 | 65.46 | — 0.04 | + 5.88 | — 0.57 | + 0.91 | + 6.18 | 71.64 | |
| | 1730 | Mar. 14 | 58.4 | 57.75 | + 0.28 | + 5.35 | + 0.57 | + 9.55 | + 15.75 | 73.50 |
| | 1731 | Feb. 16 | 59.7 | 59.03 | + 1.59 | + 2.89 | + 0.28 | + 8.60 | + 13.36 | 72.39 |
| | 1739 | Jan. 10 | 62.5 | 61.80 | + 12.48 | — 6.40 | — 0.41 | + 4.25 | + 9.92 | 71.72 |
| | 25 | 60.2 | 59.53 | + 12.54 | — 6.31 | — 0.15 | + 6.37 | + 12.45 | 71.98 | |
| | Feb. 13 | 58.0 | 57.35 | + 12.61 | — 6.19 | + 0.23 | + 8.27 | + 14.92 | 72.27 | |
| | 15 | 57.5 | 56.86 | + 12.62 | — 6.18 | + 0.26 | + 8.51 | + 15.21 | 72.07 | |
| 1740 | 17 | 57.2 | 56.57 | + 12.62 | — 6.17 | + 0.30 | + 8.66 | + 15.41 | 71.98 | |
| | Jan. 31 | 56.6 | 55.97 | + 14.10 | — 3.76 | — 0.05 | + 7.06 | + 17.35 | 73.32 | |
| | 1747 | Mar. 10 | 32.7 | 32.33 | + 23.28 | + 8.22 | + 0.55 | + 9.52 | + 41.57 | 73.90 |

46 AURIGÆ.

Assuming $P = 40^\circ 35' + 24''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|---------|-------|
| | Division of Microm. | Seconds | | | | | | | | |
| 1727 | Sept. 25 | 22.8 | 22.54 | + 0.99 | + 8.76 | + 0.57 | — 8.85 | + 1.47 | 24.01 | |
| | Oct. 4 | 23.3 | 23.04 | + 0.98 | + 8.75 | + 0.54 | — 8.76 | + 1.51 | 24.55 | |
| | 8 | 23.5 | 23.23 | + 0.98 | + 8.74 | + 0.52 | — 8.66 | + 1.58 | 24.81 | |
| | Dec. 3 | 18.4 | 18.20 | + 0.91 | + 8.65 | — 0.43 | — 3.29 | + 5.84 | 24.04 | |
| | 23 | 16.2 | 16.02 | + 0.88 | + 8.61 | — 0.54 | — 0.23 | + 8.72 | 24.74 | |
| | 24 | 15.2 | 15.03 | + 0.88 | + 8.61 | — 0.54 | — 0.07 | + 8.88 | 23.91 | |
| | 1728 | Jan. 23 | 12.2 | 12.07 | + 0.86 | + 8.54 | — 0.25 | + 4.56 | + 13.71 | 25.72 |
| | 27 | 11.3 | 11.18 | + 0.85 | + 8.53 | — 0.17 | + 5.19 | + 14.40 | 25.58 | |
| | Feb. 4 | 9.7 | 9.59 | + 0.85 | + 8.52 | — 0.01 | + 6.05 | + 15.41 | 25.00 | |
| | 7 | 10.0 | 9.89 | + 0.84 | + 8.51 | + 0.05 | + 6.40 | + 15.80 | 25.69 | |
| 1729 | 14 | 8.8 | 8.70 | + 0.84 | + 8.49 | + 0.15 | + 7.10 | + 16.58 | 25.28 | |
| | 15 | 8.0 | 7.91 | + 0.83 | + 8.49 | + 0.17 | + 7.19 | + 16.68 | 24.59 | |
| | 29 | 7.5 | 7.41 | + 0.82 | + 8.45 | + 0.44 | + 8.23 | + 17.94 | 25.35 | |
| | Mar. 3 | 7.5 | 7.41 | + 0.81 | + 8.45 | + 0.47 | + 8.39 | + 18.12 | 25.53 | |
| | 12 | 7.2 | 7.12 | + 0.80 | + 8.42 | + 0.55 | + 8.73 | + 18.50 | 25.62 | |
| | 13 | 6.0 | 5.93 | + 0.80 | + 8.42 | + 0.56 | + 8.78 | + 18.56 | 24.49 | |
| | Oct. 7 | 25.0 | 24.72 | + 0.55 | + 7.75 | + 0.52 | — 8.67 | + 0.15 | 24.87 | |
| | 1729 | Mar. 9 | 8.0 | 7.91 | + 0.36 | + 7.06 | + 0.53 | + 8.63 | + 16.58 | 24.49 |
| | 11 | 8.3 | 8.21 | + 0.36 | + 7.05 | + 0.55 | + 8.69 | + 16.65 | 24.86 | |
| | Dec. 21 | 19.7 | 19.48 | + 0.01 | + 5.42 | — 0.57 | — 1.18 | + 3.68 | 23.16 | |

TABLE V.—*Reduction of the Wanstead Observations.*

β URSAE MAJ.

Assuming $P = 32^\circ 15' - 360''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Sept. 26 | 410.0 | 405.43 | + 43.91 | + 1.85 | + 0.23 | - 1.32 | + 44.67 360.76 |
| | Nov. 2 | 398.5 | 394.06 | + 41.95 | + 1.63 | + 0.52 | - 10.74 | + 33.36 360.70 |
| | 7 | 396.5 | 392.08 | + 41.69 | + 1.60 | + 0.51 | - 11.77 | + 32.03 360.05 |
| | 28 | 391.5 | 387.13 | + 40.58 | + 1.47 | + 0.26 | - 15.02 | + 27.29 359.84 |
| | Dec. 24 | 391.0 | 386.64 | + 39.21 | + 1.31 | - 0.21 | - 16.22 | + 24.09 362.55 |
| | 25 | 389.8 | 385.46 | + 39.16 | + 1.30 | - 0.23 | - 16.20 | + 24.03 361.43 |
| 1728 | Jan. 9 | 387.8 | 383.48 | + 38.32 | + 1.20 | - 0.44 | - 15.54 | + 23.54 359.94 |
| | 17, 18 | 388.0 | 383.68 | + 37.89 | + 1.15 | - 0.50 | - 14.37 | + 24.17 359.43 |
| | 27 | 389.0 | 384.67 | + 37.36 | + 1.09 | - 0.53 | - 12.66 | + 25.26 359.41 |
| | Feb. 28 | 397.0 | 392.58 | + 35.67 | + 0.89 | - 0.20 | - 5.26 | + 31.10 361.48 |
| | Mar. 3 | 397.2 | 392.78 | + 35.45 | + 0.87 | - 0.13 | - 4.04 | + 32.15 360.63 |
| | 16 | 400.0 | 395.54 | + 34.77 | + 0.79 | + 0.11 | - 0.42 | + 35.25 360.29 |
| 1729 | 24 | 402.3 | 397.82 | + 34.35 | + 0.73 | + 0.25 | + 1.81 | + 37.14 360.68 |
| | 28 | 403.1 | 398.61 | + 34.14 | + 0.71 | + 0.31 | + 2.95 | + 38.11 360.50 |
| | Apr. 4 | 406.0 | 401.48 | + 33.77 | + 0.67 | + 0.40 | + 4.80 | + 39.64 361.84 |
| | 28 | 408.0 | 403.46 | + 32.50 | + 0.52 | + 0.53 | + 10.56 | + 44.11 359.35 |
| | 29 | 409.4 | 404.84 | + 32.45 | + 0.51 | + 0.53 | + 10.76 | + 44.25 360.59 |
| | May 7 | 411.7 | 407.11 | + 32.02 | + 0.48 | + 0.49 | + 12.30 | + 45.29 361.82 |
| 1730 | 18 | 411.0 | 406.42 | + 31.44 | + 0.39 | + 0.38 | + 14.06 | + 46.27 360.15 |
| | June 19 | 411.5 | 406.91 | + 29.74 | + 0.19 | - 0.14 | + 16.25 | + 46.04 360.87 |
| | July 5 | 409.5 | 404.93 | + 28.89 | + 0.09 | - 0.38 | + 15.67 | + 44.27 360.66 |
| | Aug. 16 | 400.5 | 396.03 | + 26.67 | - 0.17 | - 0.43 | + 9.18 | + 35.25 360.78 |
| | Sept. 4 | 393.3 | 388.92 | + 25.72 | - 0.28 | - 0.18 | + 4.45 | + 29.71 359.21 |
| | 22 | 388.0 | 383.68 | + 24.72 | - 0.40 | + 0.16 | - 0.42 | + 24.06 359.62 |
| 1731 | 24 | 388.5 | 384.17 | + 24.61 | - 0.41 | + 0.19 | - 0.97 | + 23.42 360.75 |
| | 28 | 387.5 | 383.18 | + 24.40 | - 0.44 | + 0.26 | - 2.10 | + 22.12 361.06 |
| | Oct. 1 | 386.3 | 382.00 | + 24.24 | - 0.46 | + 0.30 | - 2.91 | + 21.17 360.83 |
| | 23 | 378.5 | 374.28 | + 23.07 | - 0.59 | + 0.52 | - 8.63 | + 14.37 359.91 |
| | 24 | 378.0 | 373.79 | + 23.02 | - 0.60 | + 0.52 | - 8.87 | + 14.07 359.72 |
| | Dec. 4 | 369.3 | 365.18 | + 20.86 | - 0.86 | + 0.16 | - 15.65 | + 4.51 360.67 |
| 1732 | 5 | 369.5 | 365.38 | + 20.81 | - 0.87 | + 0.14 | - 15.71 | + 4.37 361.01 |
| | 18 | 368.5 | 364.39 | + 20.12 | - 0.94 | - 0.10 | - 16.19 | + 2.89 361.50 |
| | Mar. 20 | 379.7 | 375.47 | + 15.19 | - 1.28 | + 0.19 | + 0.61 | + 14.71 360.76 |
| | May 22 | 391.0 | 386.64 | + 11.86 | - 1.29 | + 0.33 | + 14.56 | + 25.46 361.18 |
| | June 10 | 391.0 | 386.64 | + 10.85 | - 2.02 | + 0.02 | + 16.08 | + 24.93 361.71 |
| | 11 | 391.0 | 386.64 | + 10.80 | - 2.03 | 0.00 | + 16.12 | + 24.89 361.75 |
| 1733 | 15 | 389.0 | 384.67 | + 10.59 | - 2.05 | - 0.07 | + 16.22 | + 24.69 359.98 |
| | 21 | 388.0 | 383.68 | + 10.27 | - 2.09 | - 0.17 | + 16.25 | + 24.26 359.42 |
| | 1730 June 6 | 368.5 | 364.39 | - 8.36 | - 4.07 | + 0.09 | + 15.87 | + 3.53 360.86 |
| | 1732 Sept. 14 | 306.5 | 303.09 | - 52.38 | - 6.87 | + 0.01 | + 1.81 | - 57.43 360.51 |
| | 17 | 305.3 | 301.90 | - 52.54 | - 6.87 | + 0.07 | + 0.96 | - 58.38 360.28 |
| | 1735 Sept. 24 | 249.3 | 246.53 | - 110.03 | - 4.59 | + 0.19 | - 0.75 | - 115.18 361.71 |

TABLE V.—*Reduction of the Wanstead Observations.*

ψ URSAE MAJ.

Assuming $P = 44^\circ 0' + 65''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|-------|
| | Division of Microm. | Seconds | | | | | | | |
| 1727 Nov. 7 | 30.7 | 30.36 | +41.58 | +1.26 | +0.52 | - 8.33 | +35.03 | 65.39 | |
| | 28 | 36.5 | +40.47 | +1.13 | +0.27 | -11.85 | +30.02 | 66.11 | |
| | Dec. 24 | 42.4 | +39.10 | +0.96 | -0.19 | -14.01 | +25.86 | 67.79 | |
| | 25 | 40.7 | +39.05 | +0.95 | -0.21 | -14.03 | +25.76 | 66.00 | |
| 1728 Jan. 9 | 42.5 | 42.02 | +38.21 | +0.86 | -0.43 | -13.83 | +24.81 | 66.83 | |
| | 17, 18 | 42.6 | +37.78 | +0.81 | -0.50 | -13.31 | +24.79 | 66.90 | |
| | 27 | 41.0 | +37.25 | +0.75 | -0.53 | -12.29 | +25.18 | 65.72 | |
| | Feb. 7 | 40.5 | +36.68 | +0.68 | -0.48 | -10.73 | +26.15 | 66.19 | |
| | 28 | 38.3 | +35.57 | +0.55 | -0.22 | - 6.73 | +29.17 | 67.05 | |
| | Mar. 3 | 35.5 | +35.35 | +0.52 | -0.16 | - 5.73 | +29.98 | 65.08 | |
| Apr. 4 | 16 | 33.2 | +34.68 | +0.44 | +0.08 | - 2.83 | +32.37 | 65.20 | |
| | 24 | 31.8 | +34.25 | +0.39 | +0.23 | - 0.92 | +33.95 | 65.39 | |
| | 28 | 30.6 | +34.04 | +0.37 | +0.24 | + 0.06 | +34.71 | 64.96 | |
| | 29 | 29.3 | +33.67 | +0.33 | +0.38 | + 1.75 | +36.13 | 65.11 | |
| | 27 | 24.5 | +32.46 | +0.18 | +0.53 | + 6.94 | +40.11 | 64.33 | |
| | 28 | 23.0 | +32.41 | +0.17 | +0.53 | + 7.14 | +40.25 | 62.99 | |
| May 7 | 29 | 25.0 | +32.35 | +0.16 | +0.53 | + 7.34 | +40.38 | 65.10 | |
| | 7 | 22.7 | +31.93 | +0.14 | +0.50 | + 8.90 | +41.47 | 63.91 | |
| | 18 | 23.5 | +31.35 | +0.05 | +0.36 | +10.75 | +42.51 | 65.74 | |
| | Dec. 4 | 57.5 | 56.86 | +21.97 | -1.18 | +0.17 | -12.68 | + 8.28 | 65.14 |
| | 18 | 60.0 | 59.33 | +20.05 | -1.27 | -0.08 | -13.80 | + 4.90 | 64.23 |

γ URSAE MAJ.

Assuming $P = 34^\circ 45' + 95''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|-------|
| | Division of Microm. | Seconds | | | | | | | |
| 1727 Sept. 26 | 48.7 | 48.16 | +45.34 | -0.22 | +0.10 | + 2.64 | +47.86 | 96.02 | |
| | Oct. 5 | 51.7 | 51.12 | +44.85 | -0.27 | +0.25 | + 0.05 | +44.88 | 96.00 |
| | 27 | 58.3 | 57.65 | +43.65 | -0.41 | +0.51 | - 6.23 | +37.52 | 95.17 |
| | Nov. 2 | 60.5 | 59.82 | +43.32 | -0.45 | +0.52 | - 7.84 | +35.55 | 95.37 |
| | 7 | 61.5 | 60.81 | +43.04 | -0.48 | +0.53 | - 9.12 | +33.97 | 94.78 |
| | 28 | 68.7 | 67.93 | +41.90 | -0.60 | +0.37 | -13.63 | +28.04 | 95.97 |
| | Dec. 17 | 72.5 | 71.69 | +40.87 | -0.72 | +0.05 | -16.15 | +24.05 | 95.74 |
| | 24 | 72.0 | 71.20 | +40.48 | -0.76 | -0.08 | -16.63 | +23.01 | 94.21 |
| | 25 | 73.0 | 72.19 | +40.43 | -0.77 | -0.10 | -16.68 | +22.88 | 95.07 |
| | 1728 Jan. 9 | 75.0 | 74.16 | +39.55 | -0.86 | -0.35 | -16.73 | +21.61 | 95.77 |
| Feb. 7 | 18 | 74.7 | 73.87 | +39.05 | -0.92 | -0.48 | -16.17 | +21.48 | 95.35 |
| | 7 | 73.0 | 72.19 | +37.96 | -1.04 | -0.53 | -13.51 | +22.88 | 95.07 |
| | 28 | 70.6 | 69.81 | +36.82 | -1.16 | -0.32 | - 8.95 | +26.39 | 96.20 |
| | Mar. 28 | 62.7 | 62.00 | +35.23 | -1.34 | +0.18 | - 0.98 | +33.09 | 95.09 |
| | Apr. 2 | 59.2 | 58.54 | +34.96 | -1.37 | +0.24 | + 0.49 | +34.32 | 92.86 |
| | 4 | 59.3 | 58.64 | +34.85 | -1.38 | +0.27 | + 1.06 | +34.80 | 93.44 |
| | 13 | 56.6 | 55.97 | +34.36 | -1.43 | +0.41 | + 3.63 | +36.97 | 92.94 |
| | 27 | 55.6 | 54.98 | +33.59 | -1.52 | +0.52 | + 7.39 | +39.98 | 94.96 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|-------|
| | Division of Microm. | Seconds | | | | | | | |
| 1728 | Apr. 28 | 56.0 | 55.38 | + 33.53 | - 1.53 | + 0.52 | + 7.64 | + 40.16 | 95.54 |
| | May 7 | 52.5 | 51.91 | + 33.04 | - 1.57 | + 0.52 | + 9.83 | + 41.82 | 93.73 |
| | 18 | 54.2 | 53.60 | + 32.45 | - 1.63 | + 0.46 | + 12.18 | + 43.46 | 97.06 |
| | June 16 | 51.0 | 50.43 | + 30.86 | - 1.80 | + 0.03 | + 16.22 | + 45.31 | 95.74 |
| | 19 | 49.5 | 48.94 | + 30.69 | - 1.82 | - 0.01 | + 16.42 | + 45.28 | 94.22 |
| | 26 | 51.7 | 51.12 | + 30.30 | - 1.86 | - 0.13 | + 16.77 | + 45.08 | 96.20 |
| | July 3 | 50.3 | 49.74 | + 29.94 | - 1.90 | - 0.24 | + 16.88 | + 44.68 | 94.42 |
| | 5 | 51.0 | 50.43 | + 29.83 | - 1.91 | - 0.27 | + 16.87 | + 44.52 | 94.95 |
| | 14 | 52.0 | 51.42 | + 29.30 | - 1.97 | - 0.39 | + 16.60 | + 43.54 | 94.96 |
| | Sept. 4 | 65.0 | 64.28 | + 26.49 | - 2.26 | - 0.28 | + 8.50 | + 32.45 | 96.73 |
| | 22 | 69.0 | 68.23 | + 25.50 | - 2.37 | + 0.03 | + 3.56 | + 26.72 | 94.95 |
| | 24 | 71.0 | 70.21 | + 25.39 | - 2.38 | + 0.07 | + 3.00 | + 26.08 | 96.29 |
| | Oct. 1 | 72.5 | 71.69 | + 25.02 | - 2.42 | + 0.18 | + 0.98 | + 23.76 | 95.45 |
| | 2 | 73.0 | 72.19 | + 24.91 | - 2.43 | + 0.20 | + 0.70 | + 23.38 | 95.57 |
| | 22 | 80.0 | 79.11 | + 23.87 | - 2.53 | + 0.46 | - 5.05 | + 16.75 | 95.86 |
| | Nov. 2 | 82.0 | 81.09 | + 23.32 | - 2.60 | + 0.52 | - 8.04 | + 13.18 | 94.27 |
| | Dec. 5 | 92.0 | 90.98 | + 21.48 | - 2.78 | + 0.26 | - 14.85 | + 4.11 | 95.09 |
| | 18 | 93.0 | 91.96 | + 20.76 | - 2.85 | + 0.03 | - 16.30 | + 1.64 | 93.60 |
| | 27 | 95.0 | 93.94 | + 20.26 | - 2.90 | - 0.14 | - 16.79 | + 0.43 | 94.37 |
| 1729 | Jan. 15 | 96.0 | 94.93 | + 19.18 | - 3.01 | - 0.44 | - 16.36 | - 0.63 | 94.30 |
| | Mar. 20 | 85.3 | 84.35 | + 15.69 | - 3.35 | + 0.04 | - 3.35 | + 9.03 | 93.38 |
| | Apr. 27 | 78.3 | 77.43 | + 13.61 | - 3.55 | + 0.52 | + 7.36 | + 17.94 | 95.37 |
| | May 22 | 73.0 | 72.18 | + 12.24 | - 3.68 | + 0.42 | + 12.89 | + 21.87 | 94.05 |
| | 24 | 72.8 | 71.99 | + 12.13 | - 3.69 | + 0.40 | + 13.25 | + 22.09 | 94.08 |
| | June 10 | 72.5 | 71.69 | + 11.21 | - 3.77 | + 0.15 | + 15.64 | + 23.23 | 94.92 |
| | 15 | 73.5 | 72.68 | + 10.93 | - 3.80 | + 0.07 | + 16.12 | + 23.32 | 96.00 |
| | 17 | 73.5 | 72.68 | + 10.82 | - 3.81 | + 0.03 | + 16.27 | + 23.31 | 95.99 |
| | 18 | 73.0 | 72.19 | + 10.76 | - 3.82 | + 0.01 | + 16.34 | + 23.29 | 95.48 |
| | 21 | 73.3 | 72.49 | + 10.59 | - 3.84 | - 0.06 | + 16.53 | + 23.22 | 95.71 |
| | July 4 | 74.5 | 73.67 | + 9.90 | - 3.89 | - 0.26 | + 16.89 | + 22.64 | 96.31 |
| | 11 | 74.7 | 73.87 | + 9.51 | - 3.92 | - 0.36 | + 16.74 | + 21.97 | 95.84 |
| 1730 | July 2 | 95.5 | 94.43 | - 9.99 | - 5.46 | - 0.22 | + 16.87 | + 1.20 | 95.63 |
| 1735 | Sept. 24 | 210.0 | 207.66 | - 114.61 | - 2.69 | + 0.06 | + 3.22 | - 114.02 | 93.64 |
| 1739 | Apr. 30 | 271.0 | 267.98 | - 186.59 | + 4.94 | + 0.53 | + 7.93 | - 173.19 | 94.79 |
| 1740 | June 13 | 286.5 | 283.30 | - 209.04 | + 6.26 | + 0.10 | + 15.95 | - 186.73 | 96.57 |
| | 14 | 287.5 | 284.29 | - 209.10 | + 6.26 | + 0.08 | + 16.04 | - 186.72 | 97.57 |
| | 17 | 287.2 | 284.00 | - 209.27 | + 6.27 | + 0.03 | + 16.28 | - 186.69 | 97.31 |
| 1741 | Sept. 9 | 318.0 | 314.46 | - 233.85 | + 6.68 | - 0.20 | + 7.16 | - 220.21 | 94.25 |
| | 10 | 320.2 | 316.64 | - 233.91 | + 6.67 | - 0.18 | + 6.90 | - 220.52 | 96.12 |
| 1742 | Sept. 17 | 340.7 | 336.90 | - 254.28 | + 6.15 | - 0.06 | + 5.08 | - 243.11 | 93.79 |
| 1746 | Oct. 4 | 436.7 | 431.83 | - 335.24 | - 1.15 | + 0.23 | + 0.29 | - 335.87 | 95.96 |
| 1747 | Mar. 10 | 452.7 | 447.66 | - 343.86 | - 2.09 | - 0.12 | - 6.48 | - 352.55 | 95.11 |

TABLE V.—*Reduction of the Wanstead Observations.*

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Assuming $P = 32^\circ 20' + 143''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Sept. 26 | 95.0 | 93.94 | +44.84 | -2.60 | -0.06 | + 6.58 | +48.76 142.70 |
| | Oct. 5 | 99.8 | 98.69 | +44.35 | -2.65 | +0.10 | + 3.88 | +45.68 144.37 |
| | 27 | 105.2 | 104.03 | +43.16 | -2.77 | +0.43 | - 2.99 | +37.83 141.86 |
| | 28 | 106.8 | 105.61 | +43.11 | -2.78 | +0.44 | - 3.31 | +37.46 143.07 |
| | 31 | 108.0 | 106.80 | +42.95 | -2.80 | +0.47 | - 4.23 | +36.39 143.19 |
| | Nov. 2 | 107.3 | 106.11 | +42.84 | -2.81 | +0.48 | - 4.87 | +36.04 142.15 |
| | 7 | 109.5 | 108.28 | +42.57 | -2.83 | +0.52 | - 6.40 | +33.86 142.14 |
| | 24 | 116.8 | 115.50 | +41.65 | -2.92 | +0.50 | -11.21 | +28.02 143.52 |
| | 25 | 115.0 | 113.72 | +41.60 | -2.93 | +0.49 | -11.39 | +27.77 141.49 |
| | 26 | 115.0 | 113.72 | +41.54 | -2.93 | +0.48 | -11.61 | +27.48 141.20 |
| | 28 | 116.7 | 115.40 | +41.43 | -2.95 | +0.46 | -12.14 | +26.80 142.20 |
| | Dec. 24 | 122.5 | 121.13 | +40.03 | -3.09 | +0.07 | -16.92 | +20.09 141.22 |
| 1728 | 25 | 124.3 | 122.92 | +39.98 | -3.10 | +0.05 | -17.04 | +19.89 142.81 |
| | Jan. 9 | 128.0 | 126.57 | +39.12 | -3.19 | -0.22 | -18.21 | +17.50 144.07 |
| | 18 | 128.0 | 126.57 | +38.63 | -3.23 | -0.37 | -18.20 | +16.83 143.40 |
| | Feb. 4 | 127.0 | 125.59 | +37.71 | -3.32 | -0.51 | -16.99 | +16.89 142.48 |
| | 5 | 126.5 | 125.09 | +37.66 | -3.33 | -0.51 | -16.85 | +16.97 142.06 |
| | 28 | 124.8 | 123.41 | +36.42 | -3.45 | -0.43 | -12.74 | +19.80 143.21 |
| | Apr. 17 | 110.0 | 108.77 | +33.77 | -3.70 | +0.35 | + 1.30 | +31.72 140.49 |
| | 27 | 108.3 | 107.10 | +33.23 | -3.75 | +0.47 | + 4.35 | +34.30 141.40 |
| | 29 | 107.8 | 106.60 | +33.12 | -3.76 | +0.49 | + 4.95 | +34.80 141.40 |
| | May 16 | 105.2 | 104.03 | +32.21 | -3.85 | +0.52 | + 9.72 | +38.60 142.63 |
| | 22 | 105.0 | 103.83 | +31.88 | -3.88 | +0.50 | +11.21 | +37.71 141.54 |
| 1729 | June 16 | 101.0 | 99.88 | +30.53 | -4.00 | +0.20 | +16.08 | +42.81 142.69 |
| | 19 | 101.0 | 99.88 | +30.37 | -4.01 | +0.15 | +16.49 | +43.00 142.88 |
| | 20 | 100.5 | 99.38 | +30.32 | -4.02 | +0.13 | +16.62 | +43.05 142.43 |
| | 26 | 100.8 | 99.68 | +29.99 | -4.05 | +0.03 | +17.32 | +43.29 142.97 |
| | July 3 | 99.0 | 97.90 | +29.62 | -4.08 | -0.09 | +17.85 | +43.30 141.20 |
| | 5 | 100.5 | 99.38 | +29.51 | -4.09 | -0.13 | +17.97 | +43.26 142.64 |
| | 6 | 101.0 | 99.88 | +29.46 | -4.09 | -0.15 | +18.02 | +43.24 143.12 |
| | 16 | 101.5 | 100.37 | +28.90 | -4.14 | -0.30 | +18.26 | +42.72 143.09 |
| | 17 | 102.5 | 101.35 | +28.85 | -4.14 | -0.32 | +18.25 | +42.64 143.99 |
| | Aug. 13 | 107.0 | 105.81 | +27.39 | -4.28 | -0.53 | +16.28 | +38.86 144.67 |
| | 16 | 108.0 | 106.80 | +27.23 | -4.29 | -0.53 | +15.84 | +38.25 145.05 |
| 1730 | Sept. 4 | 110.7 | 109.46 | +26.21 | -4.38 | -0.40 | +12.22 | +33.65 143.11 |
| | 17 | 115.0 | 113.72 | +25.50 | -4.44 | -0.22 | + 8.90 | +29.74 143.46 |
| | 22 | 115.5 | 114.21 | +25.23 | -4.46 | -0.13 | + 7.52 | +28.16 142.37 |
| | 24 | 117.0 | 115.70 | +25.12 | -4.47 | -0.09 | + 6.94 | +27.50 143.20 |
| | Oct. 20 | 125.8 | 124.40 | +23.72 | -4.59 | +0.35 | - 1.05 | +18.43 142.83 |
| | 22 | 126.5 | 125.09 | +23.61 | -4.60 | +0.38 | - 1.68 | +17.71 142.80 |
| | Nov. 9 | 132.7 | 131.21 | +22.64 | -4.68 | +0.52 | - 7.21 | +11.27 142.48 |
| | 28 | 139.0 | 137.45 | +21.52 | -4.76 | +0.46 | -12.32 | + 4.90 142.35 |
| | Dec. 4 | 142.0 | 140.42 | +21.30 | -4.78 | +0.40 | -13.66 | + 3.26 143.68 |
| | 5 | 140.5 | 138.93 | +21.25 | -4.78 | +0.39 | -13.87 | + 2.99 141.92 |
| | 22 | 145.3 | 143.69 | +20.21 | -4.86 | +0.11 | -16.77 | - 0.31 143.38 |
| | 27 | 145.0 | 143.88 | +19.94 | -4.88 | +0.02 | -17.35 | - 2.27 141.61 |
| | 31 | 149.0 | 147.34 | +18.10 | -5.04 | -0.50 | -17.33 | - 5.12 141.23 |
| | Feb. 1 | 147.5 | 145.85 | +18.05 | -5.04 | -0.50 | -17.22 | - 4.71 142.57 |
| | 2 | 148.0 | 146.35 | +17.99 | -5.05 | -0.51 | -17.11 | - 4.68 141.67 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1729 | Feb. 5 | 149.5 | 147.83 | + 17.83 | - 5.06 | - 0.52 | - 16.76 | - 4.51 143.32 |
| | 7 | 148.5 | 146.84 | + 17.72 | - 5.07 | - 0.53 | - 16.49 | - 4.37 142.47 |
| | Apr. 15 | 134.5 | 133.00 | + 14.10 | - 5.33 | + 0.33 | + 0.62 | + 9.72 142.72 |
| | 16 | 135.0 | 133.50 | + 14.05 | - 5.33 | + 0.34 | + 0.93 | + 9.99 143.49 |
| | 27 | 131.8 | 130.33 | + 13.46 | - 5.37 | + 0.47 | + 4.30 | + 12.86 143.19 |
| | May 22 | 124.5 | 123.11 | + 12.11 | - 5.46 | + 0.50 | + 11.16 | + 18.31 141.42 |
| | June 10 | 123.2 | 121.83 | + 11.08 | - 5.53 | + 0.30 | + 15.10 | + 20.95 142.78 |
| | 15 | 123.2 | 121.83 | + 10.81 | - 5.55 | + 0.22 | + 15.91 | + 21.39 143.22 |
| | 18 | 123.7 | 122.32 | + 10.64 | - 5.56 | + 0.18 | + 16.22 | + 21.48 143.80 |
| | 29 | 121.8 | 120.44 | + 10.05 | - 5.59 | - 0.02 | + 17.53 | + 21.97 142.41 |
| | July 4 | 122.0 | 120.64 | + 9.78 | - 5.62 | - 0.11 | + 17.90 | + 21.95 142.59 |
| | 9 | 123.5 | 122.12 | + 9.50 | - 5.63 | - 0.20 | + 18.13 | + 21.80 143.92 |
| | 11 | 121.5 | 120.14 | + 9.39 | - 5.64 | - 0.23 | + 18.20 | + 21.72 141.86 |
| | 15 | 121.3 | 119.95 | + 9.17 | - 5.65 | - 0.29 | + 18.26 | + 21.49 141.44 |
| 1730 | 16 | 122.0 | 120.64 | + 9.12 | - 5.66 | - 0.30 | + 18.26 | + 21.42 142.06 |
| | 29 | 124.0 | 122.62 | + 8.43 | - 5.70 | - 0.46 | + 17.84 | + 20.11 142.73 |
| | Aug. 1 | 125.0 | 123.61 | + 8.62 | - 5.71 | - 0.48 | + 17.61 | + 19.68 143.29 |
| | Sept. 1 | 130.0 | 128.55 | + 6.60 | - 5.80 | - 0.43 | + 12.90 | + 13.27 141.82 |
| | Oct. 24 | 147.0 | 145.36 | + 3.73 | - 5.96 | + 0.40 | - 2.23 | - 4.06 141.30 |
| | 25 | 147.8 | 146.15 | + 3.68 | - 5.96 | + 0.41 | - 2.54 | - 4.41 141.74 |
| | Nov. 4 | 152.0 | 150.31 | + 3.13 | - 5.99 | + 0.50 | - 5.64 | - 8.00 142.31 |
| | June 28 | 143.0 | 141.41 | - 9.66 | - 6.52 | - 0.01 | + 17.43 | + 1.24 142.65 |
| | Aug. 4 | 147.0 | 145.36 | - 11.67 | - 6.57 | - 0.50 | + 17.37 | - 1.37 143.99 |
| | Sept. 3 | 152.0 | 150.31 | - 13.28 | - 6.61 | - 0.41 | + 12.52 | - 7.78 142.53 |
| 1731 | 6 | 154.5 | 152.77 | - 13.45 | - 6.61 | - 0.38 | + 11.90 | - 8.54 144.23 |
| | Jan. 8 | 189.0 | 186.90 | - 20.19 | - 6.72 | - 0.22 | - 18.19 | - 45.32 141.58 |
| | 14 | 189.0 | 186.90 | - 20.52 | - 6.72 | - 0.32 | - 18.26 | - 45.82 141.08 |
| | Aug. 15 | 167.5 | 165.63 | - 32.03 | - 6.71 | - 0.53 | + 16.10 | - 23.17 142.46 |
| | 31 | 172.0 | 170.08 | - 32.78 | - 6.70 | - 0.44 | + 13.22 | - 26.70 143.38 |
| | Sept. 21 | 177.0 | 175.03 | - 34.03 | - 6.69 | - 0.15 | + 8.00 | - 32.87 142.16 |
| | 24 | 177.0 | 175.03 | - 34.19 | - 6.69 | - 0.10 | + 7.15 | - 33.83 141.20 |
| 1732 | 26 | 178.5 | 176.51 | - 34.30 | - 6.69 | - 0.06 | + 6.75 | - 34.30 142.21 |
| | Oct. 12 | 185.0 | 182.94 | - 35.16 | - 6.67 | + 0.22 | + 1.71 | - 39.90 143.04 |
| | Jan. 12 | 209.0 | 206.67 | - 40.18 | - 6.56 | - 0.27 | - 18.25 | - 65.26 141.41 |
| | 20 | 208.4 | 206.08 | - 40.62 | - 6.54 | - 0.39 | - 18.17 | - 65.72 140.36 |
| | 22 | 206.3 | 204.01 | - 40.73 | - 6.54 | - 0.41 | - 18.11 | - 65.79 138.22 |
| | Sept. 14 | 196.0 | 193.82 | - 53.48 | - 5.96 | - 0.26 | + 9.71 | - 49.99 143.83 |
| | 15 | 197.0 | 194.81 | - 53.53 | - 5.96 | - 0.24 | + 9.45 | - 50.28 144.53 |
| 1734 | 17 | 195.0 | 192.83 | - 53.64 | - 5.95 | - 0.21 | + 8.90 | - 50.90 141.93 |
| | June 22 | 219.5 | 217.05 | - 88.37 | - 3.11 | + 0.10 | + 16.80 | - 74.58 142.47 |
| | 23 | 220.5 | 218.04 | - 88.42 | - 3.10 | + 0.08 | + 16.92 | - 74.52 143.52 |
| | 27 | 220.5 | 218.04 | - 88.64 | - 3.08 | + 0.01 | + 17.33 | - 74.38 143.66 |
| | July 20 | 221.0 | 218.54 | - 89.99 | - 2.95 | - 0.36 | + 18.22 | - 75.08 143.46 |
| | 21 | 220.5 | 218.04 | - 90.04 | - 2.94 | - 0.37 | + 18.19 | - 75.16 142.88 |
| | 28 | 221.0 | 218.54 | - 90.42 | - 2.90 | - 0.45 | + 17.91 | - 75.86 142.68 |
| 1736 | Aug. 11 | 222.0 | 219.53 | - 91.18 | - 2.82 | - 0.52 | + 16.60 | - 77.92 141.61 |
| | Sept. 21 | 268.0 | 265.02 | - 132.97 | + 1.99 | - 0.15 | + 7.80 | - 123.33 141.69 |
| | 23 | 267.8 | 264.82 | - 133.08 | + 2.00 | - 0.11 | + 7.23 | - 123.96 140.86 |
| | 1737 | 285.3 | 282.13 | - 152.53 | + 4.05 | - 0.22 | + 8.97 | - 139.73 142.40 |
| 1739 | Apr. 30 | 317.0 | 313.47 | - 184.49 | + 6.31 | + 0.49 | + 5.01 | - 172.68 140.79 |
| 1740 | May 7 | 315.2 | 311.69 | - 184.87 | + 6.33 | + 0.52 | + 7.07 | - 170.95 140.74 |
| | June 10 | 332.2 | 328.50 | - 206.52 | + 6.79 | + 0.30 | + 15.14 | - 184.29 144.21 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1740 June 12 | 332.7 | 328.99 | -206.63 | +6.79 | +0.26 | +15.46 | -184.12 | 144.87 |
| | 14 | 332.7 | 328.99 | -206.74 | +6.79 | +0.23 | +15.77 | -183.95 |
| | 15 | 331.0 | 327.31 | -206.79 | +6.79 | +0.22 | +15.92 | -183.86 |
| | 17 | 331.7 | 328.00 | -206.90 | +6.79 | +0.18 | +16.20 | -183.73 |
| | 21 | 331.0 | 327.31 | -207.12 | +6.79 | +0.12 | +16.74 | -183.47 |
| | | | | | | | | 143.84 |
| 1741 Sept. 11 | 363.0 | 358.96 | -231.31 | +6.19 | -0.52 | +10.55 | -215.09 | 143.87 |
| | 12 | 361.9 | 357.87 | -231.36 | +6.19 | -0.29 | +10.30 | -215.16 |
| | 14 | 362.3 | 358.27 | -231.47 | +6.18 | -0.26 | + 9.79 | -215.76 |
| | Oct. 2 | 368.7 | 364.59 | -232.44 | +6.14 | +0.05 | + 4.64 | -221.61 |
| | 4 | 370.2 | 366.08 | -232.55 | +6.14 | +0.09 | + 4.04 | -222.28 |
| | | | | | | | | 143.80 |
| 1742 Sept. 17 | 382.2 | 377.95 | -251.40 | +4.89 | -0.22 | + 9.03 | -237.70 | 140.25 |
| 1745 Sept. 16 | 449.9 | 444.89 | -310.67 | -1.27 | -0.23 | + 9.27 | -302.90 | 141.99 |
| 1746 Sept. 30 | 475.9 | 470.60 | -331.19 | -3.42 | +0.01 | + 5.34 | -329.26 | 141.34 |
| Oct. 4 | 477.2 | 471.89 | -331.41 | -3.44 | +0.09 | + 4.17 | -330.59 | 141.30 |
| 1747 Mar. 10 | 499.2 | 493.64 | -339.92 | -4.24 | -0.28 | -10.24 | -334.68 | 138.96 |
| Sept. 14 | 497.0 | 491.46 | -350.08 | -5.06 | -0.26 | + 9.93 | -345.47 | 145.99 |

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Assuming $P = 33^\circ 35' + 160''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 Oct. 5 | 117.1 | 115.80 | +42.77 | -3.76 | +0.03 | + 6.12 | +45.16 | 160.96 |
| | 24 | 122.0 | 120.64 | +41.79 | -3.86 | +0.34 | + 0.15 | +38.42 |
| | 27 | 123.5 | 122.12 | +41.63 | -3.88 | +0.39 | - 0.80 | +37.34 |
| | 28 | 124.4 | 123.02 | +41.58 | -3.89 | +0.40 | - 1.15 | +36.94 |
| | 31 | 124.3 | 122.92 | +41.42 | -3.91 | +0.43 | - 2.11 | +35.83 |
| | Nov. 6 | 127.3 | 125.89 | +41.12 | -3.92 | +0.49 | - 4.00 | +33.69 |
| | 7 | 127.1 | 125.69 | +41.07 | -3.93 | +0.50 | - 4.35 | +33.29 |
| | 24 | 133.3 | 131.82 | +40.18 | -4.01 | +0.52 | - 9.43 | +27.26 |
| | 25 | 134.0 | 132.51 | +40.13 | -4.02 | +0.52 | - 9.71 | +26.92 |
| | 26 | 134.5 | 133.00 | +40.08 | -4.02 | +0.52 | - 9.97 | +26.61 |
| 1728 Jan. 9 | 134.7 | 133.20 | +39.98 | -4.03 | +0.51 | -10.55 | +25.91 | 159.11 |
| | Dec. 16 | 142.0 | 140.42 | +39.04 | -4.12 | +0.29 | -14.78 | +20.43 |
| | 24 | 141.0 | 139.43 | +38.61 | -4.17 | +0.15 | -16.21 | +18.38 |
| | 25 | 142.5 | 140.91 | +38.56 | -4.18 | +0.13 | -16.37 | +18.14 |
| | Feb. 4 | 147.4 | 145.76 | +37.72 | -4.25 | -0.15 | -18.15 | +15.17 |
| | 5 | 147.2 | 145.56 | +36.37 | -4.37 | -0.50 | -17.92 | +13.58 |
| | 28 | 147.8 | 146.15 | +36.32 | -4.38 | -0.50 | -17.84 | +13.60 |
| | Apr. 1 | 145.7 | 144.08 | +35.11 | -4.49 | -0.47 | -14.44 | +15.71 |
| | 17 | 136.5 | 134.98 | +33.40 | -4.50 | +0.03 | - 5.87 | +23.06 |
| | | 132.7 | 131.22 | +32.58 | -4.72 | +0.30 | - 0.93 | +27.23 |
| May 16 | 26 | 130.5 | 129.04 | +32.10 | -4.76 | +0.42 | + 1.90 | +29.66 |
| | 27 | 131.0 | 129.54 | +32.05 | -4.76 | +0.43 | + 2.21 | +29.93 |
| | 29 | 131.7 | 130.23 | +31.94 | -4.77 | +0.45 | + 2.83 | +30.45 |
| | 22 | 126.0 | 124.60 | +31.06 | -4.85 | +0.53 | + 7.87 | +34.61 |
| | June 16 | 126.7 | 125.29 | +30.75 | -4.87 | +0.52 | + 9.52 | +35.92 |
| | | 121.2 | 119.85 | +29.44 | -4.98 | +0.27 | +15.22 | +39.95 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|--------|
| | Division of Microm. | Seconds | | | | | | | |
| 1728 | June 19 | 120.0 | 118.66 | + 29.28 | - 4.99 | + 0.23 | + 15.65 | + 40.17 | 158.83 |
| | 26 | 120.0 | 118.66 | + 28.92 | - 5.02 | + 0.11 | + 16.69 | + 40.70 | 159.36 |
| | July 3 | 119.2 | 117.87 | + 28.55 | - 5.06 | + 0.03 | + 17.51 | + 41.03 | 158.90 |
| | 4 | 120.0 | 118.66 | + 28.50 | - 5.06 | + 0.01 | + 17.61 | + 41.06 | 159.72 |
| | 9 | 120.5 | 119.15 | + 28.24 | - 5.09 | - 0.12 | + 18.03 | + 41.06 | 160.21 |
| | 13 | 120.5 | 119.15 | + 28.03 | - 5.10 | - 0.19 | + 18.27 | + 41.01 | 160.16 |
| | 14 | 121.0 | 119.65 | + 27.98 | - 5.10 | - 0.21 | + 18.32 | + 40.99 | 160.64 |
| | Aug. 13 | 125.0 | 123.61 | + 26.42 | - 5.23 | - 0.52 | + 17.41 | + 38.08 | 161.69 |
| | 16 | 125.0 | 123.61 | + 26.26 | - 5.24 | - 0.53 | + 17.07 | + 37.56 | 161.17 |
| | 23 | 127.0 | 125.59 | + 25.90 | - 5.27 | - 0.52 | + 16.11 | + 36.22 | 161.81 |
| | Sept. 4 | 128.3 | 126.87 | + 25.28 | - 5.31 | - 0.45 | + 13.95 | + 33.47 | 160.34 |
| | 14 | 131.2 | 129.74 | + 24.76 | - 5.35 | - 0.33 | + 11.69 | + 30.77 | 160.51 |
| | Oct. 2 | 137.0 | 135.47 | + 23.81 | - 5.42 | - 0.03 | + 6.78 | + 25.14 | 160.61 |
| | 9 | 138.5 | 136.95 | + 23.45 | - 5.46 | + 0.10 | + 4.66 | + 22.69 | 159.64 |
| | 20 | 143.5 | 141.90 | + 22.87 | - 5.50 | + 0.28 | + 1.19 | + 18.84 | 160.74 |
| | 22 | 144.0 | 142.40 | + 22.77 | - 5.51 | + 0.31 | + 0.55 | + 18.12 | 160.52 |
| | Nov. 9 | 151.3 | 149.62 | + 21.83 | - 5.57 | + 0.51 | - 5.20 | + 11.57 | 161.19 |
| | Dec. 5 | 158.0 | 156.24 | + 20.48 | - 5.66 | + 0.44 | - 12.51 | + 2.75 | 158.99 |
| | 22 | 163.0 | 161.18 | + 19.59 | - 5.72 | + 0.19 | - 16.01 | - 1.95 | 159.23 |
| 1729 | Jan. 27 | 168.0 | 166.13 | + 17.67 | - 5.85 | - 0.44 | - 18.38 | - 7.00 | 159.13 |
| | 31 | 168.8 | 166.92 | + 17.46 | - 5.86 | - 0.48 | - 18.16 | - 7.04 | 159.88 |
| | Feb. 2 | 168.0 | 166.13 | + 17.36 | - 5.87 | - 0.49 | - 18.02 | - 7.02 | 159.11 |
| | 5 | 168.5 | 166.62 | + 17.20 | - 5.88 | - 0.51 | - 17.77 | - 6.96 | 159.66 |
| | 7 | 168.0 | 166.13 | + 17.10 | - 5.89 | - 0.52 | - 17.58 | - 6.89 | 159.24 |
| | Apr. 15 | 156.0 | 154.26 | + 13.60 | - 6.10 | + 0.27 | - 1.63 | + 6.14 | 160.40 |
| | 16 | 154.5 | 152.77 | + 13.55 | - 6.10 | + 0.29 | - 1.32 | + 6.42 | 159.19 |
| | 19 | 155.0 | 153.27 | + 13.39 | - 6.11 | + 0.33 | - 0.38 | + 7.23 | 160.50 |
| | 23 | 154.2 | 152.48 | + 13.18 | - 6.12 | + 0.38 | + 0.89 | + 8.33 | 160.81 |
| | 24 | 152.5 | 150.80 | + 13.13 | - 6.12 | + 0.39 | + 1.20 | + 8.60 | 159.40 |
| | May 22 | 145.9 | 144.28 | + 11.68 | - 6.20 | + 0.52 | + 9.47 | + 15.47 | 159.75 |
| | 28 | 143.8 | 142.20 | + 11.37 | - 6.22 | + 0.49 | + 10.99 | + 16.63 | 158.83 |
| | June 10 | 142.0 | 140.42 | + 10.60 | - 6.25 | + 0.36 | + 14.00 | + 18.71 | 159.13 |
| | 15 | 142.5 | 140.91 | + 10.34 | - 6.26 | + 0.29 | + 14.90 | + 19.27 | 160.18 |
| | 18 | 141.5 | 139.92 | + 10.18 | - 6.27 | + 0.24 | + 15.43 | + 19.58 | 159.50 |
| | July 4 | 140.0 | 138.44 | + 9.43 | - 6.31 | - 0.03 | + 17.58 | + 20.67 | 159.11 |
| | 5 | 140.3 | 138.74 | + 9.38 | - 6.31 | - 0.05 | + 17.69 | + 20.71 | 159.45 |
| | 6 | 142.0 | 140.42 | + 9.33 | - 6.32 | - 0.07 | + 17.77 | + 20.71 | 161.13 |
| | 10 | 140.3 | 138.74 | + 9.12 | - 6.33 | - 0.14 | + 18.08 | + 20.73 | 159.47 |
| | 11 | 140.7 | 139.13 | + 9.07 | - 6.33 | - 0.15 | + 18.15 | + 20.74 | 159.87 |
| | 15 | 140.0 | 138.44 | + 8.86 | - 6.34 | - 0.22 | + 18.35 | + 20.65 | 159.09 |
| | 16 | 140.0 | 138.44 | + 8.81 | - 6.34 | - 0.24 | + 18.39 | + 20.62 | 159.06 |
| | 29 | 141.5 | 139.92 | + 8.13 | - 6.38 | - 0.42 | + 18.44 | + 19.77 | 159.69 |
| | Aug. 1 | 142.0 | 140.42 | + 7.97 | - 6.39 | - 0.45 | + 18.56 | + 19.69 | 160.11 |
| 1730 | Oct. 24 | 163.0 | 161.18 | + 3.60 | - 6.56 | + 0.34 | 0.00 | - 2.62 | 158.56 |
| | July 28 | 163.0 | 161.18 | - 10.88 | - 6.89 | - 0.41 | + 18.45 | + 0.27 | 161.45 |
| | Aug. 4 | 163.5 | 161.67 | - 11.30 | - 6.89 | - 0.47 | + 18.19 | - 0.47 | 161.20 |
| | 16 | 165.0 | 163.16 | - 11.87 | - 6.89 | - 0.53 | + 17.13 | - 2.16 | 161.00 |
| | Sept. 3 | 167.5 | 165.63 | - 12.81 | - 6.89 | - 0.46 | + 14.25 | - 5.91 | 159.72 |
| | 6 | 167.0 | 165.14 | - 12.97 | - 6.89 | - 0.43 | + 13.64 | - 6.65 | 158.49 |
| | 29 | 174.0 | 172.06 | - 14.17 | - 6.90 | - 0.08 | + 7.80 | - 13.35 | 158.71 |
| 1731 | Jan. 9 | 205.5 | 203.21 | - 19.53 | - 6.87 | - 0.17 | - 18.16 | - 44.73 | 158.48 |
| | 14 | 205.7 | 203.41 | - 19.79 | - 6.86 | - 0.25 | - 18.42 | - 45.32 | 158.09 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|-----------------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1731 | Aug. 15 | 181.8 | 179.77 | — 30.88 | — 6.62 | — 0.53 | + 17.49 | — 20.54 159.23 |
| | Sept. 21 | 193.2 | 191.05 | — 32.82 | — 6.57 | — 0.22 | + 10.11 | — 29.50 161.55 |
| | 24 | 193.5 | 191.34 | — 32.98 | — 6.57 | — 0.17 | + 9.34 | — 30.38 160.96 |
| | 26 | 192.5 | 190.35 | — 33.08 | — 6.56 | — 0.14 | + 8.74 | — 31.04 159.31 |
| | 29 | 193.7 | 191.54 | — 33.24 | — 6.56 | — 0.08 | + 7.87 | — 32.01 159.53 |
| | Oct. 1 | 194.3 | 192.14 | — 33.34 | — 6.56 | — 0.05 | + 7.30 | — 32.65 159.49 |
| | 12 | 199.5 | 197.27 | — 33.91 | — 6.54 | + 0.15 | + 3.96 | — 36.34 160.93 |
| | 1732 Jan. 12 | 224.2 | 221.71 | — 38.75 | — 6.33 | — 0.21 | — 18.32 | — 63.61 158.10 |
| | 20 | 225.0 | 222.49 | — 39.17 | — 6.30 | — 0.34 | — 18.53 | — 64.34 158.15 |
| | 22 | 223.7 | 221.21 | — 39.27 | — 6.29 | — 0.36 | — 18.53 | — 64.45 156.76 |
| 1734 | Sept. 14 | 208.0 | 205.68 | — 51.57 | — 5.45 | — 0.33 | + 11.69 | — 45.66 160.02 |
| | June 22 | 234.5 | 231.88 | — 85.32 | — 2.07 | + 0.18 | + 16.04 | — 71.17 160.71 |
| | 23 | 235.0 | 232.38 | — 85.37 | — 2.06 | + 0.16 | + 16.19 | — 71.08 161.30 |
| | 29 | 233.5 | 230.89 | — 85.68 | — 2.02 | + 0.06 | + 17.00 | — 70.64 160.25 |
| | July 20 | 233.0 | 230.40 | — 86.79 | — 1.90 | — 0.29 | + 18.47 | — 70.51 159.89 |
| | 21 | 232.5 | 229.91 | — 86.83 | — 1.89 | — 0.31 | + 18.51 | — 70.52 159.39 |
| | 22 | 233.0 | 230.40 | — 86.88 | — 1.88 | — 0.32 | + 18.52 | — 70.56 159.84 |
| | Aug. 14 | 235.8 | 233.17 | — 88.08 | — 1.74 | — 0.52 | + 17.35 | — 72.99 160.18 |
| | 18 | 236.3 | 233.67 | — 88.29 | — 1.71 | — 0.54 | + 16.88 | — 73.66 160.01 |
| | 1735 Sept. 24 | 263.0 | 260.07 | — 109.28 | + 0.90 | — 0.17 | + 9.28 | — 99.27 160.80 |
| 1736 | Sept. 19 | 277.5 | 274.40 | — 128.14 | + 3.10 | — 0.25 | + 10.41 | — 114.88 159.52 |
| | 23 | 277.5 | 274.40 | — 128.35 | + 3.12 | — 0.19 | + 9.35 | — 116.07 158.33 |
| 1737 | July 3 | 284.0 | 280.84 | — 143.23 | + 4.70 | — 0.02 | + 17.48 | — 121.07 159.77 |
| | 17 | 284.0 | 280.84 | — 144.06 | + 4.77 | — 0.25 | + 18.41 | — 121.13 159.71 |
| 1738 | Sept. 17 | 295.8 | 292.50 | — 147.19 | + 5.11 | — 0.29 | + 10.99 | — 131.38 161.12 |
| | June 29 | 299.5 | 296.16 | — 161.98 | + 6.15 | + 0.06 | + 17.00 | — 138.77 157.39 |
| | July 8 | 298.5 | 295.17 | — 162.44 | + 6.18 | — 0.10 | + 17.90 | — 138.46 156.71 |
| | 10 | 303.0 | 299.63 | — 162.54 | + 6.19 | — 0.14 | + 18.05 | — 138.44 161.19 |
| | 13 | 301.0 | 297.65 | — 162.70 | + 6.20 | — 0.19 | + 18.23 | — 138.46 159.19 |
| | 1739 Apr. 30 | 330.5 | 326.81 | — 177.90 | + 6.83 | + 0.46 | + 2.89 | — 167.72 159.09 |
| | May 6 | 328.0 | 324.35 | — 178.27 | + 6.84 | + 0.50 | + 4.73 | — 166.20 158.15 |
| | 7 | 327.2 | 323.56 | — 178.32 | + 6.84 | + 0.51 | + 5.03 | — 165.94 157.62 |
| | 1740 June 10 | 41.0 | 40.54 | — 199.12 | + 6.88 | + 0.36 | + 13.99 | — 177.89 162.65 |
| | 11 | 40.7 | 40.23 | — 199.17 | + 6.88 | + 0.35 | + 14.18 | — 177.76 162.47 |
| 1741 | 12 | 40.8 | 40.34 | — 199.22 | + 6.88 | + 0.33 | + 14.38 | — 177.63 162.71 |
| | 13 | 41.0 | 40.54 | — 199.28 | + 6.88 | + 0.32 | + 14.57 | — 177.51 163.03 |
| | 14 | 40.0 | 39.55 | — 199.33 | + 6.88 | + 0.30 | + 14.76 | — 177.39 162.16 |
| | 15 | 39.8 | 39.36 | — 199.38 | + 6.87 | + 0.29 | + 14.94 | — 177.28 162.08 |
| | 21 | 39.5 | 39.06 | — 199.69 | + 6.86 | + 0.19 | + 15.96 | — 176.68 162.38 |
| | Sept. 14 | 68.0 | 67.24 | — 223.21 | + 5.77 | — 0.33 | + 11.74 | — 206.03 161.21 |
| | 15 | 69.0 | 68.23 | — 223.26 | + 5.77 | — 0.34 | + 11.50 | — 206.33 161.90 |
| | Oct. 2 | 75.5 | 74.65 | — 224.15 | + 5.71 | — 0.03 | + 6.86 | — 211.61 163.04 |
| | 4 | 75.5 | 74.65 | — 224.25 | + 5.70 | + 0.01 | + 6.57 | — 211.97 162.68 |
| | 1742 Sept. 17 | 91.0 | 89.99 | — 242.42 | + 4.13 | — 0.29 | + 11.06 | — 227.52 162.47 |
| 1746 | Sept. 30 | 177.0 | 175.03 | — 319.35 | — 4.37 | — 0.07 | + 7.70 | — 316.09 158.94 |
| | Oct. 1 | 181.5 | 179.47 | — 319.40 | — 4.38 | — 0.05 | + 7.41 | — 316.42 163.05 |
| 1747 Sept. 13 | 194.0 | 191.84 | — 337.51 | — 5.88 | — 0.34 | + 12.10 | — 331.63 160.21 | |

TABLE V.—*Reduction of the Wanstead Observations.* η URSAE MAJ.Assuming $P = 39^\circ 15' + 189''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|--------|
| | Division of Microm. | Seconds | | | | | | | |
| 1727 | Sept. 16 | 141.3 | 139.73 | +42.04 | -4.47 | -0.35 | +12.86 | +50.08 | 189.81 |
| | 25 | 142.0 | 140.42 | +41.59 | -4.52 | -0.21 | +10.72 | +47.58 | 188.00 |
| | Oct. 5 | 147.4 | 145.76 | +41.09 | -4.57 | -0.03 | + 8.09 | +44.58 | 190.34 |
| | 6 | 146.0 | 144.37 | +41.04 | -4.57 | -0.01 | + 7.82 | +44.28 | 188.65 |
| | 24 | 152.0 | 150.31 | +40.14 | -4.66 | +0.30 | + 2.46 | +38.24 | 188.55 |
| | 27 | 153.7 | 151.99 | +39.99 | -4.68 | +0.35 | + 1.54 | +37.20 | 189.19 |
| | 28 | 155.0 | 153.27 | +39.94 | -4.68 | +0.36 | + 1.20 | +36.82 | 190.09 |
| | Nov. 6 | 156.7 | 154.95 | +39.48 | -4.72 | +0.47 | - 1.60 | +33.63 | 188.58 |
| | 7 | 158.0 | 156.24 | +39.43 | -4.72 | +0.48 | - 1.94 | +33.25 | 188.49 |
| | 24 | 162.5 | 160.69 | +38.50 | -4.81 | +0.53 | - 7.12 | +27.10 | 187.79 |
| | 25 | 163.5 | 161.67 | +38.45 | -4.81 | +0.53 | - 7.41 | +26.76 | 188.43 |
| | 26 | 163.7 | 161.87 | +38.40 | -4.82 | +0.53 | - 7.69 | +26.42 | 188.29 |
| | 28 | 164.3 | 162.47 | +38.30 | -4.83 | +0.52 | - 8.27 | +25.72 | 188.19 |
| | Dec. 24 | 173.0 | 171.07 | +37.08 | -4.94 | +0.21 | -14.52 | +17.83 | 188.90 |
| | 25 | 172.5 | 170.57 | +37.03 | -4.95 | +0.19 | -14.71 | +17.56 | 188.13 |
| 1728 | Jan. 9 | 177.2 | 175.23 | +36.23 | -5.02 | -0.10 | -17.07 | +14.04 | 189.27 |
| | Feb. 4 | 178.3 | 176.32 | +34.93 | -5.13 | -0.48 | -17.89 | +11.43 | 187.75 |
| | 5 | 180.0 | 178.00 | +34.88 | -5.14 | -0.48 | -17.84 | +11.42 | 189.42 |
| | 28 | 178.3 | 176.32 | +33.73 | -5.24 | -0.50 | -15.39 | +12.60 | 188.92 |
| | Apr. 1 | 170.5 | 168.60 | +32.08 | -5.25 | -0.03 | - 7.86 | +18.94 | 187.54 |
| | 21 | 165.5 | 163.65 | +31.08 | -5.46 | +0.31 | - 1.99 | +23.94 | 187.59 |
| | 26 | 164.0 | 162.17 | +30.83 | -5.48 | +0.38 | - 0.48 | +25.25 | 187.42 |
| | 27 | 164.8 | 162.90 | +30.78 | -5.48 | +0.39 | - 0.17 | +25.52 | 188.48 |
| | 29 | 163.7 | 161.87 | +30.68 | -5.49 | +0.42 | + 0.43 | +26.04 | 187.91 |
| | May 16 | 159.7 | 157.92 | +29.82 | -5.58 | +0.53 | + 5.52 | +30.29 | 188.21 |
| | June 16 | 153.8 | 152.09 | +28.27 | -5.68 | +0.32 | +13.26 | +36.17 | 188.26 |
| | 19 | 153.5 | 151.79 | +28.12 | -5.69 | +0.28 | +13.86 | +36.57 | 188.36 |
| | 26 | 153.5 | 151.79 | +27.77 | -5.72 | +0.17 | +15.10 | +37.32 | 189.11 |
| | July 2 | 153.0 | 151.30 | +27.47 | -5.74 | +0.06 | +16.01 | +37.80 | 189.10 |
| | 3 | 152.4 | 150.71 | +27.42 | -5.74 | +0.04 | +16.14 | +37.86 | 188.57 |
| | 5 | 151.5 | 149.81 | +27.32 | -5.75 | +0.01 | +16.40 | +37.98 | 187.79 |
| | 6 | 152.0 | 150.31 | +27.27 | -5.76 | -0.01 | +16.52 | +38.02 | 188.33 |
| | 9 | 151.5 | 149.81 | +27.12 | -5.77 | -0.06 | +16.86 | +38.15 | 187.96 |
| | 10 | 152.0 | 150.31 | +27.07 | -5.77 | -0.08 | +16.97 | +38.19 | 188.50 |
| | 13 | 151.8 | 150.11 | +26.92 | -5.78 | -0.13 | +17.25 | +38.26 | 188.37 |
| | 28 | 152.5 | 150.80 | +26.17 | -5.83 | -0.37 | +18.01 | +37.98 | 188.78 |
| | Aug. 13 | 154.0 | 152.28 | +25.37 | -5.90 | -0.51 | +17.60 | +36.56 | 188.84 |
| | 16 | 155.0 | 153.27 | +25.22 | -5.91 | -0.53 | +17.38 | +36.16 | 189.43 |
| | 23 | 156.0 | 154.26 | +24.87 | -5.93 | -0.53 | +16.69 | +35.10 | 189.36 |
| | Sept. 4 | 158.3 | 156.54 | +24.27 | -5.97 | -0.48 | +14.99 | +32.81 | 189.35 |
| | 19 | 162.2 | 160.40 | +23.52 | -6.02 | -0.31 | +11.97 | +29.16 | 189.56 |
| Oct. | 1 | 165.5 | 163.65 | +22.92 | -6.06 | -0.11 | + 8.99 | +25.74 | 189.39 |
| | 2 | 166.0 | 164.15 | +22.87 | -6.06 | -0.09 | + 8.71 | +25.43 | 189.58 |
| | 9 | 167.7 | 165.83 | +22.52 | -6.09 | +0.04 | + 6.74 | +23.21 | 189.04 |
| | 20 | 172.5 | 170.57 | +21.97 | -6.13 | +0.24 | + 3.46 | +19.54 | 190.11 |
| | 22 | 172.5 | 170.57 | +21.87 | -6.14 | +0.27 | + 2.85 | +18.85 | 189.42 |
| | Nov. 9 | 178.5 | 176.51 | +20.97 | -6.19 | +0.49 | - 2.80 | +12.47 | 188.98 |
| | 28 | 184.7 | 182.64 | +20.02 | -6.24 | +0.52 | - 8.49 | + 5.81 | 188.45 |
| | 30 | 185.5 | 183.43 | +19.92 | -6.25 | +0.51 | - 9.04 | + 5.14 | 188.57 |
| Dec. 5 | 186.5 | 184.42 | +19.67 | -6.26 | +0.47 | -10.47 | + 3.41 | 187.83 | |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 Dec. 22 | 193.0 | 190.85 | + 18.81 | - 6.31 | + 0.24 | - 14.29 | - 1.55 | 189.30 |
| | 27 | 192.6 | 190.45 | + 18.56 | - 6.32 | + 0.15 | - 15.21 | 2.82 |
| 1729 Jan. 31 | 199.5 | 197.27 | + 16.77 | - 6.43 | - 0.45 | - 17.99 | - 8.10 | 189.17 |
| | Feb. 1 | 198.7 | 196.48 | + 16.72 | - 6.43 | - 0.46 | - 17.96 | 8.13 |
| 2 | 199.0 | 196.78 | + 16.67 | - 6.43 | - 0.47 | - 17.93 | - 8.16 | 188.62 |
| | 5 | 199.7 | 197.47 | + 16.52 | - 6.44 | - 0.49 | - 17.81 | 8.22 |
| 7 | 199.0 | 196.78 | + 16.42 | - 6.44 | - 0.51 | - 17.70 | - 8.23 | 188.55 |
| | Apr. 16 | 187.0 | 184.92 | + 13.02 | - 6.62 | + 0.23 | - 3.59 | 3.04 |
| 23 | 184.8 | 182.74 | + 12.67 | - 6.63 | + 0.34 | - 1.46 | + 4.92 | 187.66 |
| | 24 | 185.2 | 183.14 | + 12.62 | - 6.64 | + 0.35 | - 1.16 | 5.17 |
| 27 | 183.5 | 181.45 | + 12.47 | - 6.64 | + 0.39 | - 0.25 | + 5.97 | 187.42 |
| | May 22 | 178.8 | 176.81 | + 11.21 | - 6.69 | + 0.53 | + 7.13 | 12.18 |
| June 10 | 173.5 | 171.56 | + 10.26 | - 6.73 | + 0.40 | + 11.93 | + 15.86 | 187.42 |
| | 11 | 173.5 | 171.56 | + 10.21 | - 6.73 | + 0.39 | + 12.15 | 16.02 |
| 15 | 173.4 | 171.46 | + 10.01 | - 6.74 | + 0.33 | + 13.00 | + 16.60 | 188.06 |
| | 17 | 173.8 | 171.86 | + 9.91 | - 6.74 | + 0.31 | + 13.41 | 16.89 |
| 18 | 173.3 | 171.37 | + 9.86 | - 6.75 | + 0.29 | + 13.60 | + 17.00 | 188.37 |
| | July 4 | 171.5 | 169.59 | + 9.06 | - 6.78 | + 0.03 | + 16.24 | 18.55 |
| 6 | 172.5 | 170.57 | + 8.96 | - 6.78 | - 0.01 | + 16.39 | + 18.56 | 189.13 |
| | 10 | 170.5 | 168.60 | + 8.76 | - 6.79 | - 0.08 | + 16.94 | 18.83 |
| 11 | 171.7 | 169.79 | + 8.71 | - 6.79 | - 0.10 | + 17.04 | + 18.86 | 188.65 |
| | 16 | 172.0 | 170.08 | + 8.46 | - 6.80 | - 0.18 | + 17.47 | 18.95 |
| Aug. 1 | 172.3 | 170.38 | + 7.66 | - 6.81 | - 0.41 | + 18.03 | + 18.47 | 188.85 |
| | Sept. 21 | 181.0 | 178.98 | + 5.11 | - 6.90 | - 0.27 | + 11.57 | 9.51 |
| Oct. 3 | 185.3 | 183.24 | + 4.51 | - 6.92 | - 0.07 | + 8.51 | + 6.03 | 189.27 |
| | 18 | 190.2 | 188.08 | + 3.76 | - 6.94 | + 0.20 | + 4.14 | 1.16 |
| 24 | 191.3 | 189.17 | + 3.46 | - 6.95 | + 0.30 | + 2.31 | - 0.88 | 188.29 |
| | 25 | 192.5 | 190.35 | + 3.41 | - 6.95 | + 0.31 | + 2.00 | 1.23 |
| Nov. 4 | 195.5 | 193.32 | + 2.90 | - 6.96 | + 0.44 | - 1.13 | - 4.75 | 188.57 |
| | 1730 July 28 | 191.7 | 189.56 | - 10.45 | - 7.03 | - 0.37 | + 17.99 | 0.14 |
| 30 | 191.7 | 189.56 | - 10.55 | - 7.03 | - 0.39 | + 18.03 | + 0.06 | 189.62 |
| | Aug. 4 | 191.0 | 188.87 | - 10.85 | - 7.05 | - 0.44 | + 18.00 | - 0.34 |
| 16 | 193.2 | 191.05 | - 11.40 | - 7.04 | - 0.53 | + 17.42 | - 1.55 | 189.50 |
| | 23 | 195.0 | 192.83 | - 11.75 | - 7.04 | - 0.53 | + 16.78 | 2.54 |
| Sept. 6 | 197.2 | 195.01 | - 12.45 | - 7.03 | - 0.47 | + 14.83 | - 5.12 | 189.89 |
| | 29 | 201.5 | 199.25 | - 13.60 | - 7.01 | - 0.14 | + 9.45 | 11.30 |
| 1731 Jan. 8 | 235.0 | 232.38 | - 18.71 | - 6.90 | - 0.10 | - 16.99 | - 42.70 | 189.68 |
| | 14 | 236.7 | 234.06 | - 19.01 | - 6.89 | - 0.20 | - 17.59 | 43.69 |
| Aug. 15 | 210.2 | 207.86 | - 29.67 | - 6.47 | - 0.52 | + 17.51 | - 19.15 | 188.71 |
| | 18 | 210.5 | 208.15 | - 29.82 | - 6.46 | - 0.54 | + 17.28 | 19.54 |
| 28 | 211.8 | 209.44 | - 30.32 | - 6.44 | - 0.53 | + 16.16 | - 21.12 | 188.32 |
| | 31 | 212.5 | 210.13 | - 30.47 | - 6.43 | - 0.51 | + 15.74 | - 21.67 |
| Sept. 21 | 218.5 | 216.06 | - 31.52 | - 6.39 | - 0.27 | + 11.68 | - 26.50 | 189.56 |
| | 22 | 218.3 | 215.87 | - 31.57 | - 6.39 | - 0.25 | + 11.45 | 26.76 |
| 24 | 219.7 | 217.25 | - 31.67 | - 6.38 | - 0.22 | + 10.97 | - 27.30 | 189.95 |
| | 29 | 220.5 | 218.04 | - 31.92 | - 6.37 | - 0.14 | + 9.70 | 28.73 |
| Oct. 12 | 224.5 | 222.00 | - 32.57 | - 6.35 | + 0.10 | + 6.09 | - 32.73 | 189.27 |
| | 15 | 225.0 | 222.49 | - 32.72 | - 6.34 | + 0.15 | + 5.18 | 33.73 |
| 1732 Jan. 12 | 251.0 | 248.20 | - 37.22 | - 6.07 | - 0.15 | - 17.33 | - 60.77 | 187.43 |
| | 20 | 253.5 | 250.67 | - 37.62 | - 6.04 | - 0.29 | - 17.86 | 61.81 |
| Apr. 24 | 253.5 | 250.67 | - 37.72 | - 6.03 | - 0.32 | - 17.94 | - 62.01 | 188.66 |
| | 241.5 | 238.81 | - 42.37 | - 5.63 | + 0.35 | - 1.09 | - 48.74 | 190.07 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|----------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1732 Apr. 28 | 240.0 | 237.33 | — 42.57 | — 5.61 | + 0.41 | + 0.13 | — 47.64 | 189.69 |
| 1734 June 22 | 259.5 | 256.61 | — 81.95 | — 1.24 | + 0.23 | + 14.34 | — 68.62 | 187.99 |
| 23 | 260.5 | 257.59 | — 82.00 | — 1.23 | + 0.21 | + 14.53 | — 68.49 | 189.10 |
| 27 | 260.0 | 257.10 | — 82.20 | — 1.21 | + 0.15 | + 15.29 | — 67.97 | 189.13 |
| 29 | 259.0 | 256.12 | — 82.30 | — 1.20 | + 0.11 | + 15.66 | — 67.73 | 189.39 |
| July 20 | 258.5 | 255.62 | — 83.35 | — 1.06 | — 0.25 | + 17.72 | — 66.94 | 188.68 |
| 21 | 258.5 | 255.62 | — 83.40 | — 1.05 | — 0.27 | + 17.77 | — 66.95 | 188.67 |
| 22 | 258.5 | 255.62 | — 83.45 | — 1.05 | — 0.28 | + 17.82 | — 66.96 | 188.66 |
| 27 | 258.0 | 255.13 | — 83.70 | — 1.01 | — 0.35 | + 17.99 | — 67.07 | 188.06 |
| 28 | 257.0 | 254.14 | — 83.75 | — 1.00 | — 0.36 | + 18.00 | — 67.11 | 187.03 |
| Aug. 14 | 261.5 | 258.58 | — 84.60 | — 0.89 | — 0.52 | + 17.56 | — 68.45 | 190.13 |
| 18 | 260.3 | 257.40 | — 84.80 | — 0.86 | — 0.54 | + 17.24 | — 68.90 | 188.50 |
| 1735 Sept. 20 | 284.0 | 280.84 | — 104.75 | + 1.78 | — 0.29 | + 11.92 | — 91.34 | 189.50 |
| 21 | 283.7 | 280.54 | — 104.80 | + 1.79 | — 0.27 | + 11.69 | — 91.59 | 188.95 |
| 1736 Sept. 19 | 298.0 | 294.68 | — 123.05 | + 4.01 | — 0.31 | + 11.98 | — 107.37 | 187.31 |
| 23 | 299.0 | 295.67 | — 123.25 | + 4.03 | — 0.24 | + 11.04 | — 108.42 | 187.35 |
| 1737 July 3 | 305.8 | 302.39 | — 137.46 | + 5.46 | + 0.04 | + 16.10 | — 115.86 | 186.53 |
| 12 | 307.0 | 303.58 | — 137.91 | + 5.50 | — 0.12 | + 17.12 | — 115.41 | 188.17 |
| 14 | 306.5 | 303.08 | — 138.01 | + 5.51 | — 0.15 | + 17.31 | — 115.34 | 187.74 |
| 17 | 306.3 | 302.89 | — 138.16 | + 5.52 | — 0.20 | + 17.52 | — 115.32 | 187.57 |
| Sept. 17 | 315.5 | 311.98 | — 141.26 | + 5.77 | — 0.34 | + 12.48 | — 123.35 | 188.63 |
| 1738 June 29 | 324.5 | 320.80 | — 155.56 | + 6.69 | + 0.11 | + 15.48 | — 133.28 | 187.52 |
| July 8 | 321.2 | 317.62 | — 156.01 | + 6.72 | — 0.05 | + 16.68 | — 132.66 | 184.96 |
| 10 | 322.5 | 318.90 | — 156.11 | + 6.73 | — 0.08 | + 16.91 | — 132.55 | 186.35 |
| 13 | 322.0 | 318.41 | — 156.26 | + 6.73 | — 0.13 | + 17.19 | — 132.47 | 185.94 |
| 26 | 322.2 | 318.61 | — 156.91 | + 6.76 | — 0.34 | + 17.96 | — 132.53 | 186.08 |
| Oct. 4 | 337.0 | 333.25 | — 160.46 | + 6.90 | — 0.05 | + 8.45 | — 145.16 | 188.09 |
| 1739 Apr. 30 | 354.5 | 350.55 | — 170.85 | + 7.14 | + 0.43 | + 0.49 | — 162.79 | 187.76 |
| May 6 | 351.5 | 347.58 | — 171.16 | + 7.15 | + 0.48 | + 2.31 | — 161.22 | 186.36 |
| 7 | 350.9 | 346.99 | — 171.21 | + 7.15 | + 0.49 | + 2.61 | — 160.96 | 186.03 |
| Sept. 14 | 351.4 | 347.49 | — 177.71 | + 7.16 | — 0.38 | + 13.42 | — 157.51 | 189.98 |
| 1740 June 10 | 364.8 | 360.74 | — 191.25 | + 6.85 | + 0.40 | + 11.98 | — 172.02 | 188.72 |
| 11 | 365.0 | 360.93 | — 191.30 | + 6.85 | + 0.39 | + 12.20 | — 171.86 | 189.07 |
| 12 | 365.0 | 360.93 | — 191.35 | + 6.85 | + 0.38 | + 12.41 | — 171.71 | 189.22 |
| 13 | 365.8 | 361.72 | — 191.40 | + 6.84 | + 0.36 | + 12.63 | — 171.57 | 190.15 |
| 14 | 364.0 | 359.95 | — 191.45 | + 6.84 | + 0.35 | + 12.84 | — 171.42 | 188.53 |
| 15 | 364.0 | 359.95 | — 191.50 | + 6.84 | + 0.33 | + 13.04 | — 171.29 | 188.66 |
| 17 | 365.0 | 360.93 | — 191.60 | + 6.84 | + 0.31 | + 13.45 | — 171.00 | 189.93 |
| 21 | 362.4 | 358.37 | — 191.80 | + 6.83 | + 0.25 | + 14.23 | — 170.49 | 187.88 |
| 1741 Sept. 15 | 389.0 | 384.67 | — 214.41 | + 5.37 | — 0.36 | + 13.20 | — 196.20 | 188.47 |
| Oct. 2 | 395.0 | 390.60 | — 215.26 | + 5.31 | — 0.09 | + 8.84 | — 201.20 | 189.40 |
| 4 | 395.2 | 390.80 | — 215.36 | + 5.30 | — 0.05 | + 8.39 | — 201.72 | 189.08 |
| 1745 Sept. 16 | 471.8 | 466.54 | — 287.68 | — 3.31 | — 0.35 | + 13.06 | — 278.28 | 188.26 |
| 1746 Sept. 30 | 497.6 | 492.05 | — 306.66 | — 5.22 | — 0.12 | + 9.39 | — 302.61 | 189.44 |
| Oct. 1 | 496.8 | 491.27 | — 306.71 | — 5.22 | — 0.11 | + 9.13 | — 302.89 | 188.38 |
| 1747 Sept. 13 | 513.8 | 508.08 | — 324.11 | — 6.45 | — 0.39 | + 13.46 | — 317.49 | 190.59 |
| 14 | 512.3 | 506.60 | — 324.16 | — 6.45 | — 0.38 | + 13.25 | — 317.74 | 188.86 |

TABLE V.—*Reduction of the Wanstead Observations.* δ DRACONIS.Assuming $P = 37^\circ 30' - 147''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 | Aug. 31 | 165.5 | 163.65 | +7.29 | -8.83 | -0.45 | +18.86 | +16.87 146.78 |
| | Sept. 1 | 166.9 | 165.04 | +7.28 | -8.83 | -0.47 | +18.95 | +16.93 148.11 |
| | 2 | 165.8 | 163.95 | +7.27 | -8.83 | -0.48 | +19.03 | +16.99 146.96 |
| | 3 | 167.0 | 165.14 | +7.26 | -8.83 | -0.49 | +19.11 | +17.05 148.09 |
| | 5 | 167.8 | 165.93 | +7.24 | -8.83 | -0.51 | +19.25 | +17.15 148.78 |
| | 13 | 166.2 | 164.35 | +7.17 | -8.83 | -0.56 | +19.58 | +17.36 146.99 |
| | 14 | 166.8 | 164.94 | +7.16 | -8.83 | -0.56 | +19.60 | +17.37 147.57 |
| | 15 | 165.8 | 163.95 | +7.15 | -8.83 | -0.56 | +19.61 | +17.37 146.58 |
| | 18 | 166.0 | 164.15 | +7.12 | -8.83 | -0.57 | +19.61 | +17.33 146.82 |
| | 26 | 166.8 | 164.94 | +7.06 | -8.83 | -0.56 | +19.35 | +17.02 147.92 |
| | Oct. 4 | 165.2 | 163.36 | +6.99 | -8.82 | -0.50 | +18.74 | +16.41 146.95 |
| | 5 | 164.7 | 162.86 | +6.98 | -8.82 | -0.49 | +18.63 | +16.30 146.56 |
| | 28 | 162.5 | 160.69 | +6.79 | -8.82 | -0.14 | +14.80 | +12.63 148.06 |
| Nov. 25 | 154.6 | 152.87 | +6.55 | -8.79 | +0.39 | +7.00 | +5.15 | 147.72 |
| | 28 | 153.8 | 152.09 | +6.52 | -8.79 | +0.43 | +6.01 | +4.17 147.92 |
| | Dec. 16 | 147.2 | 145.56 | +6.37 | -8.78 | +0.58 | -0.13 | -1.96 147.52 |
| | 17 | 146.5 | 144.86 | +6.36 | -8.78 | +0.58 | -0.50 | -2.34 147.20 |
| | 24 | 143.2 | 141.61 | +6.30 | -8.77 | +0.56 | -2.90 | -4.81 146.42 |
| 1728 | Jan. 8 | 138.7 | 137.15 | +6.15 | -8.76 | +0.42 | -8.30 | -10.49 147.64 |
| | 9 | 138.2 | 136.66 | +6.14 | -8.76 | +0.41 | -8.62 | -10.83 147.49 |
| | 27 | 131.8 | 130.33 | +6.10 | -8.73 | +0.09 | -13.65 | -16.09 146.42 |
| | Feb. 3 | 131.0 | 129.54 | +5.94 | -8.72 | -0.05 | -15.29 | -18.12 147.66 |
| | 5 | 131.0 | 129.54 | +5.92 | -8.72 | -0.09 | -15.71 | -18.60 148.14 |
| | 21 | 127.5 | 126.08 | +5.79 | -8.70 | -0.39 | -18.36 | -21.66 147.74 |
| | 27 | 125.0 | 123.61 | +5.74 | -8.69 | -0.47 | -18.99 | -22.41 146.02 |
| | Mar. 18 | 126.0 | 124.60 | +5.56 | -8.66 | -0.57 | -19.55 | -23.22 147.82 |
| | 29 | 126.7 | 125.29 | +5.47 | -8.65 | -0.52 | -18.87 | -22.57 147.86 |
| | 31 | 127.4 | 125.99 | +5.45 | -8.64 | -0.51 | -18.67 | -22.37 148.36 |
| | Apr. 2 | 128.0 | 126.57 | +5.44 | -8.64 | -0.48 | -18.45 | -22.13 148.70 |
| | 4 | 128.5 | 127.06 | +5.42 | -8.64 | -0.46 | -18.21 | -21.89 148.95 |
| May | 17 | 131.3 | 129.84 | +5.31 | -8.61 | -0.27 | -16.16 | -19.73 149.57 |
| | 18 | 129.7 | 128.25 | +5.30 | -8.61 | -0.25 | -15.97 | -19.53 147.78 |
| | 16 | 137.7 | 136.16 | +5.06 | -8.55 | +0.27 | -9.02 | -12.24 148.40 |
| | 17 | 138.3 | 136.76 | +5.05 | -8.55 | +0.29 | -8.73 | -11.94 148.70 |
| | 21 | 136.5 | 134.98 | +5.01 | -8.54 | +0.49 | -7.53 | -10.57 145.55 |
| | June 15 | 147.7 | 146.05 | +4.81 | -8.49 | +0.57 | +0.44 | -2.67 148.72 |
| | July 2 | 153.0 | 151.30 | +4.67 | -8.46 | +0.51 | +5.98 | +2.70 148.60 |
| | 3 | 154.8 | 153.07 | +4.66 | -8.46 | +0.50 | +6.19 | +2.89 150.18 |
| | 6 | 154.0 | 152.28 | +4.63 | -8.45 | +0.47 | +7.10 | +3.75 148.53 |
| | 13 | 155.0 | 153.27 | +4.57 | -8.43 | +0.38 | +9.18 | +5.70 147.57 |
| Aug. | 14 | 157.3 | 155.55 | +4.56 | -8.43 | +0.36 | +9.46 | +5.95 149.60 |
| | 15 | 156.0 | 154.26 | +4.55 | -8.43 | +0.35 | +9.74 | +6.21 148.05 |
| | 16 | 156.5 | 154.75 | +4.54 | -8.43 | +0.33 | +10.02 | +6.46 148.29 |
| | 24 | 158.0 | 156.24 | +4.47 | -8.41 | +0.20 | +12.17 | +8.43 147.81 |
| | 29 | 159.5 | 157.72 | +4.42 | -8.39 | +0.11 | +13.42 | +9.56 148.16 |
| | 6 | 161.0 | 159.21 | +4.36 | -8.37 | -0.05 | +15.19 | +11.13 148.08 |
| | 8 | 160.5 | 158.71 | +4.34 | -8.37 | -0.08 | +15.61 | +11.50 147.21 |
| | 12 | 161.7 | 159.90 | +4.32 | -8.36 | -0.16 | +16.36 | +12.16 147.74 |
| | 13 | 161.0 | 159.21 | +4.30 | -8.36 | -0.18 | +16.54 | +12.30 146.91 |
| | 16 | 163.0 | 161.18 | +4.28 | -8.34 | -0.23 | +17.05 | +12.76 148.42 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 Aug. 21 | 162.0 | 160.20 | + 4.24 | - 8.33 | - 0.31 | + 17.83 | + 13.43 | 146.77 |
| | 23 | 163.0 | + 4.22 | - 8.32 | - 0.35 | + 18.01 | + 13.56 | 147.62 |
| | 26 | 164.0 | + 4.19 | - 8.32 | - 0.39 | + 18.43 | + 13.91 | 148.26 |
| | 29 | 163.5 | + 4.16 | - 8.31 | - 0.43 | + 18.75 | + 14.17 | 147.50 |
| | Sept. 1 | 165.5 | + 4.15 | - 8.30 | - 0.46 | + 19.02 | + 14.41 | 149.24 |
| | 3 | 164.0 | + 4.13 | - 8.29 | - 0.49 | + 19.17 | + 14.52 | 147.65 |
| | 5 | 164.0 | + 4.11 | - 8.29 | - 0.51 | + 19.30 | + 14.61 | 147.56 |
| | 9 | 166.0 | + 4.08 | - 8.28 | - 0.54 | + 19.50 | + 14.76 | 149.39 |
| | 14 | 165.0 | + 4.03 | - 8.26 | - 0.56 | + 19.61 | + 14.82 | 148.34 |
| | 17 | 165.0 | + 4.00 | - 8.25 | - 0.57 | + 19.61 | + 14.79 | 148.37 |
| | 20 | 164.3 | + 3.98 | - 8.25 | - 0.57 | + 19.56 | + 14.72 | 147.75 |
| | 21 | 164.3 | + 3.97 | - 8.24 | - 0.57 | + 19.54 | + 14.70 | 147.77 |
| | 22 | 164.7 | + 3.96 | - 8.24 | - 0.57 | + 19.50 | + 14.65 | 148.21 |
| | 26 | 165.0 | + 3.93 | - 8.23 | - 0.56 | + 19.31 | + 14.45 | 148.71 |
| Oct. 9 | 27 | 163.3 | + 3.92 | - 8.23 | - 0.56 | + 19.25 | + 14.38 | 147.10 |
| | 22 | 162.0 | + 3.83 | - 8.19 | - 0.45 | + 18.07 | + 13.26 | 146.94 |
| | 29 | 161.0 | + 3.71 | - 8.16 | - 0.24 | + 15.91 | + 11.22 | 147.99 |
| | Nov. 30 | 150.0 | + 3.38 | - 8.03 | + 0.45 | + 5.10 | + 0.90 | 147.43 |
| Dec. 3 | 4 | 149.0 | + 3.35 | - 8.02 | + 0.49 | + 4.10 | - 0.08 | 147.42 |
| | 4 | 149.0 | + 3.34 | - 8.01 | + 0.50 | + 3.75 | - 0.42 | 147.76 |
| 1729 Jan. 31 | 9 | 147.5 | + 3.30 | - 7.99 | + 0.54 | + 2.02 | - 2.13 | 147.98 |
| | 30 | 140.5 | + 3.13 | - 7.92 | + 0.52 | - 5.21 | - 9.48 | 148.41 |
| | Feb. 5 | 130.0 | + 2.84 | - 7.80 | - 0.01 | - 14.56 | - 19.53 | 148.08 |
| | 8 | 129.5 | + 2.80 | - 7.78 | - 0.11 | - 15.85 | - 20.94 | 148.99 |
| | 8 | 128.5 | + 2.77 | - 7.77 | - 0.17 | - 16.45 | - 21.62 | 148.68 |
| | 16 | 126.5 | + 2.71 | - 7.74 | - 0.32 | - 17.78 | - 23.13 | 148.22 |
| | 17 | 126.5 | + 2.70 | - 7.74 | - 0.34 | - 17.93 | - 23.31 | 148.40 |
| | 25 | 125.5 | + 2.63 | - 7.70 | - 0.45 | - 18.87 | - 24.39 | 148.49 |
| | Mar. 4 | 123.8 | + 2.57 | - 7.67 | - 0.52 | - 19.38 | - 25.00 | 147.42 |
| | 8 | 125.4 | + 2.53 | - 7.66 | - 0.55 | - 19.55 | - 25.23 | 149.23 |
| | 9 | 125.5 | + 2.52 | - 7.66 | - 0.56 | - 19.57 | - 25.27 | 149.37 |
| | 10 | 125.2 | + 2.52 | - 7.65 | - 0.56 | - 19.59 | - 25.28 | 149.09 |
| | 17 | 124.5 | + 2.46 | - 7.62 | - 0.57 | - 19.57 | - 25.30 | 148.41 |
| | 28 | 125.3 | + 2.37 | - 7.58 | - 0.53 | - 18.99 | - 24.73 | 148.64 |
| Apr. 4 | 29 | 125.0 | + 2.36 | - 7.58 | - 0.52 | - 18.88 | - 24.62 | 148.23 |
| | 31 | 126.5 | + 2.34 | - 7.57 | - 0.51 | - 18.68 | - 24.42 | 149.51 |
| | 27 | 127.5 | + 2.30 | - 7.56 | - 0.46 | - 18.23 | - 23.95 | 150.03 |
| | June 9 | 131.0 | + 2.11 | - 7.45 | - 0.08 | - 14.08 | - 19.50 | 149.04 |
| June 11 | 9 | 143.7 | + 1.75 | - 7.26 | + 0.56 | - 1.63 | - 6.58 | 148.60 |
| | 11 | 142.7 | + 1.73 | - 7.25 | + 0.56 | - 0.95 | - 5.91 | 147.02 |
| July 12 | 13 | 142.6 | + 1.71 | - 7.24 | + 0.57 | - 0.30 | - 5.26 | 146.27 |
| | 16 | 145.5 | + 1.69 | - 7.23 | + 0.57 | + 0.67 | - 4.30 | 148.18 |
| | 18 | 145.2 | + 1.67 | - 7.22 | + 0.58 | + 1.32 | - 3.65 | 147.24 |
| | 21 | 152.0 | + 1.46 | - 7.11 | + 0.40 | + 8.83 | + 3.58 | 146.73 |
| | 21 | 155.6 | + 1.39 | - 7.07 | + 0.25 | + 11.33 | + 5.90 | 147.96 |
| | Aug. 7 | 159.2 | + 1.24 | - 6.98 | - 0.06 | + 15.35 | + 9.55 | 147.88 |
| | 8 | 159.0 | + 1.23 | - 6.98 | - 0.08 | + 15.56 | + 9.73 | 147.50 |
| Aug. 9 | 9 | 160.0 | + 1.22 | - 6.97 | - 0.10 | + 15.76 | + 9.91 | 148.31 |
| | 10 | 160.0 | + 1.21 | - 6.97 | - 0.12 | + 15.95 | + 10.07 | 148.15 |
| | 16 | 159.7 | + 1.17 | - 6.93 | - 0.23 | + 17.01 | + 11.02 | 147.90 |
| | 17 | 160.5 | + 1.16 | - 6.93 | - 0.24 | + 17.17 | + 11.16 | 147.56 |
| | 21 | 163.0 | + 1.12 | - 6.91 | - 0.31 | + 17.77 | + 11.67 | 149.51 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1729 Aug. 23 | 161.0 | 159.21 | +1.10 | -6.90 | -0.35 | +18.04 | +11.89 | 147.32 |
| | 24 | 161.8 | 160.00 | +1.09 | -6.89 | -0.36 | +18.17 | +12.01 |
| | 28 | 162.0 | 160.20 | +1.07 | -6.87 | -0.42 | +18.62 | +12.40 |
| | Sept. 3 | 161.7 | 159.90 | +1.02 | -6.84 | -0.49 | +19.15 | +12.84 |
| | 5 | 162.7 | 160.89 | +1.00 | -6.83 | -0.51 | +19.34 | +13.00 |
| | 8 | 162.8 | 160.99 | +0.97 | -6.82 | -0.53 | +19.45 | +13.07 |
| | 9 | 162.5 | 160.69 | +0.96 | -6.82 | -0.54 | +19.49 | +13.09 |
| | 13 | 162.3 | 160.50 | +0.93 | -6.79 | -0.56 | +19.59 | +13.17 |
| | 19 | 161.8 | 160.00 | +0.88 | -6.76 | -0.57 | +19.59 | +13.14 |
| | 20 | 162.7 | 160.89 | +0.87 | -6.76 | -0.57 | +19.57 | +13.11 |
| | 24 | 163.3 | 161.48 | +0.83 | -6.74 | -0.56 | +19.43 | +12.96 |
| | Oct. 7 | 160.7 | 158.91 | +0.73 | -6.67 | -0.48 | +18.35 | +11.93 |
| 1730 Mar. 21 | 15 | 160.8 | 159.01 | +0.66 | -6.63 | -0.36 | +17.26 | +10.93 |
| | 18 | 160.0 | 158.22 | +0.63 | -6.61 | -0.32 | +16.72 | +10.42 |
| | 21 | 159.0 | 157.23 | +0.60 | -6.60 | -0.26 | +16.16 | +9.90 |
| | 25 | 159.0 | 157.23 | +0.56 | -6.58 | -0.19 | +15.45 | +9.24 |
| | 29 | 158.0 | 156.24 | +0.53 | -6.56 | -0.12 | +14.47 | +8.32 |
| | Dec. 7 | 145.5 | 143.88 | +0.21 | -6.33 | +0.53 | + 2.80 | - 2.79 |
| | 14 | 144.5 | 142.89 | +0.15 | -6.29 | +0.57 | + 0.39 | - 5.18 |
| | 29 | 124.2 | 122.82 | -0.75 | -5.66 | -0.52 | -18.91 | -25.84 |
| | June 17 | 145.5 | 143.88 | -1.43 | -5.15 | +0.57 | + 0.91 | - 5.10 |
| | 18 | 145.0 | 143.39 | -1.44 | -5.14 | +0.58 | + 1.24 | - 4.76 |
| | Aug. 29 | 160.5 | 158.71 | -2.05 | -4.65 | -0.43 | +18.71 | +11.58 |
| 1731 Jan. 8 | Sept. 3 | 161.0 | 159.21 | -2.09 | -4.62 | -0.49 | +19.16 | +11.96 |
| | 4 | 161.5 | 159.70 | -2.10 | -4.61 | -0.50 | +19.23 | +12.02 |
| | 5 | 161.0 | 159.21 | -2.11 | -4.60 | -0.51 | +19.27 | +12.05 |
| | 6 | 161.0 | 159.21 | -2.12 | -4.60 | -0.52 | +19.33 | +12.09 |
| | 11 | 161.5 | 159.70 | -2.17 | -4.56 | -0.55 | +19.55 | +12.27 |
| | 29 | 162.2 | 160.40 | -2.32 | -4.44 | -0.54 | +19.15 | +11.85 |
| | Oct. 1 | 161.4 | 159.61 | -2.34 | -4.43 | -0.53 | +19.00 | +11.70 |
| | 3 | 161.5 | 159.70 | -2.35 | -4.41 | -0.51 | +18.82 | +11.55 |
| | Dec. 23 | 141.0 | 139.43 | -3.04 | -3.83 | +0.56 | - 2.66 | - 8.97 |
| | 26 | 139.7 | 138.14 | -3.06 | -3.81 | +0.56 | - 3.67 | - 9.98 |
| 1731 Jan. 8 | 29 | 137.7 | 136.16 | -3.09 | -3.79 | +0.53 | - 4.71 | -11.06 |
| | Feb. 17 | 135.5 | 133.99 | -3.18 | -3.70 | +0.41 | - 8.40 | -14.87 |
| | Aug. 15 | 124.3 | 122.92 | -3.52 | -2.98 | -0.33 | -17.86 | -24.69 |
| | 25 | 158.5 | 156.73 | -5.04 | -2.06 | -0.21 | +16.67 | + 9.36 |
| | 28 | 159.8 | 158.02 | -5.13 | -2.00 | -0.38 | +18.23 | +10.72 |
| | 29 | 160.0 | 158.22 | -5.16 | -1.98 | -0.42 | +18.57 | +11.01 |
| | Sept. 2 | 160.2 | 158.42 | -5.17 | -1.97 | -0.43 | +18.69 | +11.12 |
| | 31 | 161.0 | 159.21 | -5.18 | -1.96 | -0.45 | +18.88 | +11.29 |
| | 3 | 160.5 | 158.71 | -5.20 | -1.94 | -0.49 | +19.12 | +11.49 |
| | 14 | 161.0 | 159.21 | -5.30 | -1.87 | -0.56 | +19.61 | +11.88 |
| 1731 Oct. 1 | 18 | 161.0 | 159.21 | -5.34 | -1.85 | -0.57 | +19.62 | +11.86 |
| | 21 | 161.0 | 159.21 | -5.36 | -1.83 | -0.57 | +19.57 | +11.81 |
| | 23 | 160.0 | 158.22 | -5.38 | -1.82 | -0.57 | +19.50 | +11.73 |
| | 24 | 160.0 | 158.22 | -5.39 | -1.81 | -0.56 | +19.46 | +11.70 |
| | 26 | 161.5 | 159.70 | -5.41 | -1.80 | -0.56 | +19.36 | +11.59 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | +11.36 |
| | Oct. 1 | 159.5 | 157.72 | -5.44 | -1.76 | -0.53 | +19.04 | +11.31 |
| | 30 | 159.7 | 157.92 | -5.44 | -1.77 | -0.53 | +19.10 | |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1731 Oct. | 3 | 160.0 | 158.22 | — 5.46 | — 1.75 | — 0.51 | + 18.84 | + 11.12 147.10 |
| | 6 | 159.0 | 157.23 | — 5.49 | — 1.73 | — 0.48 | + 18.54 | + 10.84 146.39 |
| | 15 | 158.3 | 156.54 | — 5.56 | — 1.68 | — 0.35 | + 17.32 | + 9.72 146.82 |
| | Dec. 29 | 138.0 | 136.46 | — 6.14 | — 1.27 | + 0.53 | — 4.63 | — 11.51 147.97 |
| | 1732 Sept. 13 | 159.8 | 158.02 | — 8.42 | + 1.23 | — 0.56 | + 19.61 | + 11.86 146.16 |
| 1732 Sept. | 14 | 160.5 | 158.71 | — 8.43 | + 1.24 | — 0.56 | + 19.62 | + 11.87 146.84 |
| | 15 | 160.5 | 158.71 | — 8.44 | + 1.25 | — 0.56 | + 19.63 | + 11.88 146.83 |
| | 16 | 161.0 | 159.21 | — 8.45 | + 1.26 | — 0.57 | + 19.63 | + 11.87 147.34 |
| | 17 | 160.0 | 158.22 | — 8.46 | + 1.26 | — 0.57 | + 19.62 | + 11.85 146.37 |
| | 1733 Feb. 2 | 126.8 | 125.39 | — 9.62 | + 2.38 | — 0.05 | — 15.25 | — 22.54 147.93 |
| 1734 June | 5 | 162.0 | 160.20 | — 11.44 | + 4.05 | — 0.51 | + 19.30 | + 11.40 148.80 |
| | 6 | 162.5 | 160.69 | — 11.45 | + 4.06 | — 0.51 | + 19.32 | + 11.42 149.27 |
| | 9 | 161.5 | 159.70 | — 11.48 | + 4.08 | — 0.54 | + 19.50 | + 11.56 148.14 |
| | 30 | 147.0 | 145.36 | — 13.98 | + 6.10 | + 0.53 | + 5.12 | — 2.23 147.59 |
| | July 2 | 148.5 | 146.84 | — 14.00 | + 6.11 | + 0.51 | + 5.74 | — 1.64 148.48 |
| 1734 Aug. | 16 | 151.0 | 149.32 | — 14.12 | + 6.20 | + 0.33 | + 9.90 | + 2.31 147.01 |
| | 21 | 153.0 | 151.30 | — 14.16 | + 6.23 | + 0.25 | + 11.28 | + 3.60 147.70 |
| | 27 | 154.5 | 152.77 | — 14.21 | + 6.27 | + 0.14 | + 12.81 | + 5.01 147.76 |
| | 9 | 158.2 | 156.44 | — 14.32 | + 6.34 | — 0.10 | + 15.73 | + 7.65 148.79 |
| | 11 | 157.5 | 155.74 | — 14.34 | + 6.35 | — 0.14 | + 16.11 | + 7.98 147.76 |
| 1735 Dec. | 14 | 157.8 | 156.04 | — 14.36 | + 6.37 | — 0.19 | + 16.65 | + 8.47 147.57 |
| | 17 | 159.0 | 157.23 | — 14.39 | + 6.39 | — 0.25 | + 17.14 | + 8.89 148.34 |
| | 18 | 159.0 | 157.23 | — 14.40 | + 6.40 | — 0.27 | + 17.30 | + 9.03 148.20 |
| | 19 | 160.0 | 158.22 | — 14.41 | + 6.40 | — 0.28 | + 17.47 | + 9.18 149.04 |
| | 22 | 141.2 | 139.63 | — 15.47 | + 7.09 | + 0.57 | — 2.41 | — 10.22 149.85 |
| 1735 Jan. | 2 | 136.0 | 134.49 | — 15.57 | + 7.16 | + 0.49 | — 6.42 | — 14.34 148.83 |
| | 3 | 135.3 | 133.80 | — 15.58 | + 7.16 | + 0.48 | — 6.76 | — 14.70 148.50 |
| | 7 | 134.5 | 133.00 | — 15.62 | + 7.18 | + 0.43 | — 8.08 | — 16.09 149.09 |
| | Sept. 21 | 159.2 | 157.43 | — 17.79 | + 8.26 | — 0.57 | + 19.58 | + 9.48 147.95 |
| | 24 | 158.8 | 157.03 | — 17.82 | + 8.27 | — 0.56 | + 19.47 | + 9.36 147.67 |
| 1736 Sept. | 11 | 157.5 | 155.74 | — 20.82 | + 8.98 | — 0.55 | + 19.58 | + 7.19 148.55 |
| | 19 | 157.8 | 156.04 | — 20.87 | + 8.98 | — 0.57 | + 19.61 | + 7.15 148.89 |
| | 20 | 157.3 | 155.55 | — 20.88 | + 8.98 | — 0.57 | + 19.58 | + 7.11 148.44 |
| | 1737 Jan. 15 | 126.7 | 125.29 | — 21.89 | + 9.00 | + 0.30 | — 10.61 | — 23.20 148.49 |
| | 30 | 123.2 | 121.83 | — 22.01 | + 8.99 | + 0.01 | — 14.59 | — 27.60 149.43 |
| 1737 Sept. | 12 | 153.5 | 151.79 | — 23.93 | + 8.68 | — 0.55 | + 19.60 | + 3.80 147.99 |
| | 13 | 154.0 | 152.28 | — 23.94 | + 8.68 | — 0.56 | + 19.62 | + 3.80 148.48 |
| | 15 | 152.7 | 151.00 | — 23.96 | + 8.67 | — 0.56 | + 19.64 | + 3.79 147.21 |
| | 17 | 154.0 | 152.28 | — 23.98 | + 8.67 | — 0.57 | + 19.64 | + 3.76 148.52 |
| | 18 | 152.5 | 150.80 | — 23.98 | + 8.67 | — 0.57 | + 19.63 | + 3.75 147.05 |
| 1738 Aug. | 19 | 154.0 | 152.28 | — 23.99 | + 8.67 | — 0.57 | + 19.62 | + 3.73 148.55 |
| | 5 | 146.8 | 145.16 | — 26.70 | + 7.56 | — 0.03 | + 14.91 | — 4.28 149.44 |
| | 8 | 147.3 | 145.66 | — 26.73 | + 7.55 | — 0.08 | + 15.52 | — 3.74 149.40 |
| | 9 | 146.5 | 144.86 | — 26.74 | + 7.54 | — 0.10 | + 15.74 | — 3.56 148.42 |
| | Sept. 24 | 150.5 | 148.82 | — 27.12 | + 7.34 | — 0.56 | + 19.47 | — 0.87 149.69 |
| 1739 Feb. | 4 | 112.5 | 111.24 | — 28.25 | + 6.61 | — 0.09 | — 15.58 | — 37.31 148.55 |
| | Aug. 30 | 144.3 | 142.70 | — 30.01 | + 5.33 | — 0.44 | + 18.81 | — 6.31 149.01 |
| | 31 | 144.2 | 142.60 | — 30.02 | + 5.32 | — 0.45 | + 18.90 | — 6.25 148.85 |
| | Sept. 4 | 143.5 | 141.90 | — 30.05 | + 5.29 | — 0.50 | + 19.22 | — 6.40 148.30 |
| | 6 | 144.0 | 142.40 | — 30.07 | + 5.28 | — 0.52 | + 19.34 | — 5.97 148.37 |
| 1739 Sept. | 7 | 144.3 | 142.70 | — 30.08 | + 5.27 | — 0.53 | + 19.40 | — 5.94 148.64 |
| | 9 | 143.2 | 141.61 | — 30.10 | + 5.26 | — 0.54 | + 19.50 | — 5.88 147.49 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|--------|
| | Division of Microm. | Seconds | | | | | | | |
| 1739 Sept. 10 | 143.3 | 141.71 | -30".11 | +5.25 | -0".54 | +19".54 | - 5.86 | 147".57 | |
| | 11 | 143.8 | 142.20 | -30.12 | +5.24 | -0.55 | +19.57 | - 5.86 | 148.06 |
| | 13 | 143.6 | 142.00 | -30.13 | +5.23 | -0.56 | +19.62 | - 5.84 | 147.84 |
| 1740 Jan. 31 | 108.2 | 107.00 | -31.30 | +4.26 | +0.01 | -14.65 | -41.68 | 148.68 | |
| | Aug. 20 | 136.5 | 134.98 | -33.02 | +2.66 | -0.30 | +17.70 | -12.96 | 147.94 |
| | 29 | 137.0 | 135.47 | -33.10 | +2.57 | -0.43 | +18.79 | -12.17 | 147.64 |
| Sept. 1 | 30 | 137.0 | 135.47 | -33.11 | +2.56 | -0.44 | +18.88 | -12.11 | 147.58 |
| | 1 | 138.2 | 136.66 | -33.12 | +2.54 | -0.47 | +19.05 | -12.00 | 148.66 |
| | 4 | 137.2 | 135.67 | -33.15 | +2.52 | -0.50 | +19.27 | -11.86 | 147.53 |
| | 5 | 138.0 | 136.46 | -33.16 | +2.51 | -0.51 | +19.33 | -11.83 | 148.29 |
| | 8 | 137.5 | 135.96 | -33.18 | +2.48 | -0.53 | +19.50 | -11.73 | 147.69 |
| 1741 Feb. 1 | 9 | 137.7 | 136.16 | -33.19 | +2.47 | -0.54 | +19.53 | -11.73 | 147.89 |
| | 16 | 136.0 | 134.49 | -33.26 | +2.41 | -0.57 | +19.65 | -11.77 | 146.26 |
| | 19 | 137.0 | 135.47 | -33.29 | +2.38 | -0.57 | +19.62 | -11.86 | 147.33 |
| | Oct. 1 | 135.0 | 133.50 | -33.38 | +2.27 | -0.53 | +18.98 | -12.66 | 146.16 |
| | 6 | 99.0 | 97.90 | -34.46 | +0.85 | -0.13 | -16.10 | -49.84 | 147.74 |
| Sept. 7 | 7 | 131.2 | 129.74 | -36.26 | -0.38 | -0.53 | +19.44 | -17.73 | 147.47 |
| | 8 | 131.2 | 129.74 | -36.27 | -0.39 | -0.53 | +19.48 | -17.71 | 147.45 |
| | 9 | 130.8 | 129.34 | -36.28 | -0.39 | -0.54 | +19.53 | -17.68 | 147.02 |
| | 11 | 132.0 | 130.53 | -36.30 | -0.41 | -0.55 | +19.59 | -17.67 | 148.20 |
| | 13 | 131.7 | 130.23 | -36.31 | -0.42 | -0.56 | +19.63 | -17.66 | 147.89 |
| 1742 Sept. 16 | 17 | 131.0 | 129.54 | -36.35 | -0.45 | -0.57 | +19.65 | -17.72 | 147.26 |
| | Oct. 2 | 130.0 | 128.55 | -36.48 | -0.57 | -0.52 | +18.91 | -18.66 | 147.21 |
| | 17 | 125.7 | 124.30 | -39.44 | -2.99 | -0.57 | +19.65 | -23.35 | 147.65 |
| 1743 Sept. 13 | 17 | 125.3 | 123.91 | -39.45 | -3.00 | -0.57 | +19.65 | -23.37 | 147.28 |
| | 13 | 119.0 | 117.67 | -42.50 | -5.87 | -0.56 | +19.63 | -29.30 | 146.97 |
| | 14 | 119.5 | 118.16 | -42.51 | -5.88 | -0.56 | +19.64 | -29.31 | 147.47 |
| 1745 Sept. 13 | 16 | 108.5 | 107.29 | -48.68 | -8.69 | -0.56 | +19.64 | -38.29 | 145.58 |
| | 16 | 108.8 | 107.59 | -48.71 | -8.69 | -0.57 | +19.66 | -38.31 | 145.90 |
| | 1746 Sept. 26 | 107.2 | 106.01 | -51.86 | -8.71 | -0.56 | +19.38 | -41.75 | 147.76 |
| 1747 Sept. 12 | 30 | 107.5 | 106.30 | -51.90 | -8.71 | -0.53 | +19.12 | -42.02 | 148.32 |
| | Oct. 1 | 106.0 | 104.82 | -51.91 | -8.70 | -0.53 | +19.04 | -42.10 | 146.92 |
| | 13 | 104.5 | 103.33 | -52.83 | -7.80 | -0.55 | +19.64 | -41.53 | 144.86 |
| | | 105.5 | 104.32 | -52.84 | -7.80 | -0.56 | +19.64 | -41.56 | 145.88 |

* HERCULIS.

Assuming $P = 43^\circ 50' - 90'$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 Feb. 27 | 66.8 | 66.05 | +4".51 | -8".67 | -0".45 | -18".19 | -22.60 | 88.65 |
| | 66.3 | 65.06 | +4.30 | -8.62 | -0.53 | -18.46 | -23.31 | 88.87 |
| | 66.7 | 65.95 | +4.29 | -8.61 | -0.52 | -18.23 | -23.07 | 89.02 |
| | 66.8 | 66.05 | +4.27 | -8.61 | -0.49 | -18.04 | -22.87 | 88.92 |
| | 67.1 | 66.35 | +4.26 | -8.61 | -0.47 | -17.83 | -22.65 | 89.00 |
| | 69.8 | 69.02 | +4.17 | -8.58 | -0.28 | -15.97 | -20.66 | 89.68 |
| | 77.3 | 76.44 | +3.97 | -8.52 | +0.26 | - 9.28 | -13.57 | 90.01 |
| | 77.0 | 76.14 | +3.96 | -8.52 | +0.27 | - 9.00 | -13.29 | 89.43 |
| | | | | | | | | |
| | | | | | | | | |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 May | 21 | 78.7 | 77.82 | +3.93 | -8.51 | +0.34 | - 7.72 | -11.96 89.78 |
| | June 15 | 86.0 | 85.04 | +3.78 | -8.45 | +0.57 | - 0.21 | - 4.31 89.35 |
| | 16 | 85.5 | 84.54 | +3.77 | -8.45 | +0.57 | + 0.11 | - 4.00 88.54 |
| | 26 | 91.5 | 90.48 | +3.70 | -8.42 | +0.56 | + 3.24 | - 0.92 91.40 |
| | July 2 | 91.5 | 90.48 | +3.67 | -8.41 | +0.52 | + 5.10 | + 0.88 89.60 |
| | 3 | 92.5 | 91.47 | +3.66 | -8.41 | +0.51 | + 5.42 | + 1.18 90.29 |
| | 11 | 95.0 | 93.94 | +3.60 | -8.38 | +0.42 | + 7.76 | + 3.40 90.54 |
| | 14 | 96.5 | 95.42 | +3.58 | -8.38 | +0.38 | + 8.61 | + 4.19 91.23 |
| | 24 | 97.6 | 96.51 | +3.51 | -8.36 | +0.21 | +11.29 | + 6.65 89.86 |
| | 29 | 99.0 | 97.90 | +3.47 | -8.34 | +0.13 | +12.53 | + 7.79 90.11 |
| Aug. | 6 | 101.3 | 100.17 | +3.43 | -8.32 | -0.03 | +14.30 | + 9.38 90.79 |
| | 8 | 101.5 | 100.37 | +3.42 | -8.31 | -0.07 | +14.72 | + 9.76 90.61 |
| | 12 | 102.5 | 101.35 | +3.39 | -8.30 | -0.14 | +15.49 | +10.44 90.91 |
| | 13 | 103.0 | 101.85 | +3.38 | -8.30 | -0.16 | +15.67 | +10.59 91.26 |
| | 16 | 104.0 | 102.84 | +3.36 | -8.29 | -0.21 | +16.18 | +11.04 91.80 |
| | 21 | 105.0 | 103.83 | +3.33 | -8.27 | -0.30 | +16.96 | +11.72 92.11 |
| | 23 | 106.0 | 104.82 | +3.32 | -8.27 | -0.33 | +17.23 | +11.95 92.87 |
| | 26 | 104.5 | 103.33 | +3.29 | -8.26 | -0.38 | +17.61 | +12.26 91.07 |
| | 29 | 107.0 | 105.81 | +3.27 | -8.25 | -0.42 | +17.95 | +12.55 93.26 |
| | Sept. 3 | 104.2 | 103.04 | +3.25 | -8.23 | -0.48 | +18.40 | +12.94 90.10 |
| | 5 | 104.0 | 102.84 | +3.23 | -8.23 | -0.50 | +18.55 | +13.05 89.79 |
| | 14 | 104.3 | 103.14 | +3.17 | -8.20 | -0.56 | +18.95 | +13.36 89.78 |
| 1729 Mar. | 8 | 66.5 | 65.75 | +2.00 | -7.56 | -0.57 | -18.85 | -24.95 90.70 |
| | 9 | 65.8 | 65.07 | +1.99 | -7.56 | -0.55 | -18.88 | -25.00 90.07 |
| | 17 | 66.5 | 65.75 | +1.94 | -7.53 | -0.57 | -18.97 | -25.13 90.88 |
| | 28 | 66.7 | 65.95 | +1.87 | -7.48 | -0.53 | -18.50 | -24.64 90.59 |
| | 29 | 68.0 | 67.24 | +1.86 | -7.48 | -0.53 | -18.43 | -24.58 91.82 |
| | 31 | 70.5 | 69.71 | +1.85 | -7.47 | -0.52 | -18.26 | -24.40 94.11 |
| | Apr. 17 | 71.7 | 70.90 | +1.66 | -7.35 | -0.10 | -14.07 | -19.86 90.76 |
| | June 16 | 86.5 | 85.53 | +1.33 | -7.11 | +0.57 | + 0.03 | - 5.18 90.71 |
| July | 18 | 88.5 | 87.51 | +1.32 | -7.10 | +0.58 | + 0.65 | - 4.55 92.06 |
| | 11 | 97.5 | 96.41 | +1.16 | -7.00 | +0.42 | + 7.69 | + 2.27 94.14 |
| | 21 | 97.0 | 95.92 | +1.09 | -6.95 | +0.27 | +10.45 | + 4.86 91.06 |
| | Aug. 7 | 99.3 | 98.20 | +0.99 | -6.86 | -0.05 | +14.46 | + 8.54 89.66 |
| | 8 | 99.5 | 98.39 | +0.98 | -6.85 | -0.07 | +14.67 | + 8.73 89.66 |
| | 9 | 100.5 | 99.38 | +0.98 | -6.85 | -0.09 | +14.87 | + 8.91 90.47 |
| | 10 | 100.5 | 99.38 | +0.97 | -6.84 | -0.10 | +15.06 | + 9.09 90.29 |
| | 16 | 102.0 | 100.86 | +0.92 | -6.81 | -0.22 | +16.14 | +10.03 90.83 |
| | 17 | 102.5 | 101.35 | +0.91 | -6.81 | -0.23 | +16.30 | +10.17 91.18 |
| | 21 | 101.2 | 100.08 | +0.89 | -6.79 | -0.30 | +16.90 | +10.70 89.38 |
| 1730 Mar. | 23 | 103.5 | 102.34 | +0.88 | -6.77 | -0.33 | +17.26 | +11.04 91.30 |
| | 24 | 102.5 | 101.35 | +0.87 | -6.77 | -0.35 | +17.38 | +11.13 90.22 |
| | 28 | 102.0 | 100.86 | +0.85 | -6.75 | -0.41 | +17.82 | +11.51 89.35 |
| | 30 | 102.7 | 101.55 | +0.84 | -6.74 | -0.43 | +18.03 | +11.70 89.85 |
| | Sept. 8 | 102.5 | 101.35 | +0.77 | -6.69 | -0.53 | +18.72 | +12.27 89.08 |
| | 9 | 100.7 | 99.58 | +0.76 | -6.68 | -0.53 | +18.77 | +12.32 87.26 |
| | 21 | 66.0 | 65.26 | -0.53 | -5.55 | -0.58 | -18.89 | -25.55 90.81 |
| | 27 | 65.7 | 64.97 | -0.57 | -5.52 | -0.54 | -18.59 | -25.22 90.19 |
| | 29 | 67.0 | 66.25 | -0.59 | -5.50 | -0.53 | -18.45 | -25.07 91.32 |
| | June 17 | 86.0 | 85.04 | -1.12 | -4.99 | +0.57 | + 0.26 | - 5.28 90.32 |
| Aug. 29 | 18 | 85.2 | 84.25 | -1.13 | -4.98 | +0.58 | + 0.57 | - 4.96 89.21 |
| | 102.0 | 100.86 | -1.61 | -4.48 | -0.42 | +17.90 | +11.39 | 89.47 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|-------|
| | Division of Microm. | Seconds | | | | | | | |
| 1730 Sept. 3 | 102.5 | 101.35 | -1.64 | -4.44 | -0.48 | +18.36 | +11.80 | 89.55 | |
| | 4 | 102.5 | 101.35 | -1.65 | -4.43 | -0.49 | +18.44 | +11.87 | 89.48 |
| | 6 | 103.2 | 102.05 | -1.66 | -4.42 | -0.51 | +18.58 | +11.99 | 90.06 |
| | 11 | 103.5 | 102.34 | -1.70 | -4.39 | -0.54 | +18.85 | +12.22 | 90.12 |

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Assuming $P = 33^\circ 0' + 133''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|--------|
| | Division of Microm. | Seconds | | | | | | | |
| 1728 Apr. 17 | 111.0 | 109.76 | +1.52 | -8.47 | -0.32 | -17.38 | -24.65 | 133.41 | |
| | May 17 | 117.5 | 116.19 | +1.45 | -8.39 | +0.24 | -10.39 | -17.09 | 133.28 |
| | June 15 | 128.0 | 126.57 | +1.38 | -8.31 | +0.56 | -1.26 | -7.63 | 134.20 |
| | 16 | 129.7 | 128.25 | +1.38 | -8.31 | +0.57 | -0.93 | -7.29 | 135.54 |
| | 26 | 128.0 | 126.57 | +1.35 | -8.28 | +0.56 | +2.36 | -4.01 | 130.58 |
| | July 2 | 131.0 | 129.54 | +1.33 | -8.27 | +0.53 | +4.33 | -2.08 | 131.62 |
| | 3 | 137.5 | 135.96 | +1.33 | -8.27 | +0.52 | +4.65 | -1.77 | 137.73 |
| | 11 | 135.0 | 133.50 | +1.32 | -8.24 | +0.45 | +7.18 | +0.71 | 132.79 |
| | 14 | 136.5 | 134.98 | +1.31 | -8.23 | +0.41 | +8.10 | +1.59 | 133.39 |
| | 16 | 137.0 | 135.47 | +1.30 | -8.22 | +0.38 | +8.69 | +2.15 | 133.32 |
| | 24 | 137.7 | 136.16 | +1.28 | -8.20 | +0.25 | +11.01 | +4.34 | 131.82 |
| | 29 | 141.0 | 139.43 | +1.27 | -8.19 | +0.16 | +12.36 | +5.60 | 133.83 |
| | Aug. 6 | 140.8 | 139.23 | +1.25 | -8.16 | +0.01 | +14.31 | +7.41 | 131.82 |
| | 8 | 142.0 | 140.42 | +1.25 | -8.15 | -0.03 | +14.79 | +7.86 | 132.56 |
| | 12 | 144.5 | 142.89 | +1.24 | -8.14 | -0.10 | +15.65 | +8.65 | 134.24 |
| | 13 | 143.2 | 141.61 | +1.24 | -8.14 | -0.12 | +15.85 | +8.83 | 132.78 |
| | 16 | 143.5 | 141.90 | +1.23 | -8.12 | -0.18 | +16.43 | +9.36 | 132.54 |
| | 21 | 141.5 | 139.92 | +1.21 | -8.11 | -0.26 | +17.34 | +10.18 | 129.74 |
| | 23 | 143.0 | 141.41 | +1.21 | -8.10 | -0.30 | +17.65 | +10.46 | 130.95 |
| | 26 | 146.0 | 144.37 | +1.20 | -8.09 | -0.35 | +18.10 | +10.86 | 133.51 |
| 1729 Mar. 17 | 28 | 146.0 | 144.37 | +1.20 | -8.08 | -0.38 | +18.38 | +11.12 | 133.25 |
| | 29 | 144.5 | 142.89 | +1.19 | -8.08 | -0.39 | +18.51 | +11.23 | 131.66 |
| | Sept. 2 | 147.0 | 145.36 | +1.19 | -8.07 | -0.44 | +18.97 | +11.65 | 133.71 |
| | 5 | 146.2 | 144.57 | +1.18 | -8.06 | -0.48 | +19.26 | +11.90 | 132.67 |
| | 108.0 | 106.80 | +0.71 | -7.28 | -0.57 | -19.97 | -27.11 | 133.91 | |
| | 28 | 108.2 | 107.00 | +0.68 | -7.23 | -0.55 | -19.68 | -26.78 | 133.78 |
| | 29 | 106.7 | 105.51 | +0.68 | -7.22 | -0.54 | -19.62 | -26.70 | 132.21 |
| | 31 | 110.0 | 108.77 | +0.67 | -7.21 | -0.53 | -19.47 | -26.54 | 135.31 |
| | Apr. 27 | 111.7 | 110.45 | +0.60 | -7.08 | -0.14 | -15.37 | -21.99 | 132.44 |
| | June 16 | 127.3 | 125.89 | +0.48 | -6.83 | +0.57 | -1.01 | -6.79 | 132.68 |
| | 18 | 127.0 | 125.59 | +0.48 | -6.82 | +0.58 | -0.35 | -6.11 | 131.70 |
| | July 11 | 133.0 | 131.52 | +0.43 | -6.70 | +0.45 | +7.11 | +1.29 | 130.23 |
| | 21 | 139.2 | 137.65 | +0.40 | -6.65 | +0.30 | +10.09 | +4.14 | 133.51 |
| | Aug. 7 | 143.3 | 141.71 | +0.36 | -6.56 | -0.01 | +14.49 | +8.28 | 133.43 |
| | 8 | 142.5 | 140.91 | +0.36 | -6.55 | -0.03 | +14.73 | +8.51 | 132.40 |
| | 9 | 142.5 | 140.91 | +0.36 | -6.54 | -0.05 | +14.96 | +8.73 | 132.18 |
| | 16 | 144.3 | 142.70 | +0.33 | -6.50 | -0.18 | +16.39 | +10.04 | 132.66 |
| | 17 | 145.5 | 143.88 | +0.33 | -6.50 | -0.20 | +16.57 | +10.20 | 133.68 |
| | 21 | 146.0 | 144.37 | +0.32 | -6.48 | -0.27 | +17.29 | +10.86 | 133.51 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1729 Aug. 24 | 146.0 | 144.37 | +0.31 | -6.46 | -0.32 | +17.77 | +11.30 | 133.07 |
| | 28 | 147.8 | 146.15 | +0.31 | -6.44 | -0.38 | +18.35 | +11.84 |
| | 30 | 146.3 | 144.67 | +0.30 | -6.43 | -0.41 | +18.60 | +12.06 |
| | Sept. 8 | 148.5 | 146.84 | +0.28 | -6.38 | -0.51 | +19.49 | +12.88 |
| | 9 | 149.0 | 147.34 | +0.28 | -6.37 | -0.52 | +19.56 | +12.95 |
| | 11 | 146.2 | 144.57 | +0.27 | -6.36 | -0.53 | +19.68 | +13.06 |
| 1730 Mar. 21 | 110.5 | 109.26 | -0.20 | -5.17 | -0.58 | -19.95 | -25.90 | 135.16 |
| | 27 | 110.5 | 109.26 | -0.21 | -5.13 | -0.55 | -19.74 | -25.63 |
| | 29 | 111.0 | 109.76 | -0.22 | -5.12 | -0.54 | -19.63 | -25.51 |
| | June 17 | 130.5 | 129.04 | -0.41 | -4.58 | +0.57 | -0.76 | -5.18 |
| | 18 | 130.0 | 128.55 | -0.41 | -4.57 | +0.58 | -0.43 | -4.83 |
| | Aug. 29 | 147.0 | 145.36 | -0.58 | -4.06 | -0.39 | +18.45 | +13.42 |
| Sept. 3 | 149.7 | 148.03 | -0.59 | -4.02 | -0.46 | +19.02 | +13.95 | 134.08 |
| | 4 | 149.5 | 147.83 | -0.59 | -4.01 | -0.47 | +19.12 | +14.05 |
| | 5 | 147.8 | 146.15 | -0.61 | -4.00 | -0.48 | +19.21 | +14.12 |
| | 11 | 147.5 | 145.85 | -0.62 | -3.96 | -0.53 | +19.67 | +14.56 |
| | | | | | | | | 131.29 |

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Assuming $P = 38^\circ 25' + 82''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 Aug. 30 | 72.6 | 71.79 | +2.11 | -8.83 | -0.40 | +18.13 | +11.01 | 82.80 |
| | Sept. 1 | 71.5 | 70.70 | +2.11 | -8.83 | -0.43 | +18.36 | +11.21 |
| | 2 | 70.0 | 69.22 | +2.10 | -8.83 | -0.44 | +18.47 | +11.30 |
| | 3 | 71.4 | 70.61 | +2.10 | -8.83 | -0.45 | +18.58 | +11.40 |
| | 5 | 71.6 | 70.80 | +2.10 | -8.83 | -0.48 | +18.78 | +11.57 |
| | 10 | 71.8 | 71.00 | +2.08 | -8.82 | -0.52 | +19.18 | +11.92 |
| | 11 | 70.7 | 69.91 | +2.08 | -8.82 | -0.53 | +19.24 | +11.97 |
| | 13 | 71.7 | 70.90 | +2.07 | -8.82 | -0.54 | +19.35 | +12.06 |
| | 14 | 71.3 | 70.51 | +2.07 | -8.82 | -0.55 | +19.40 | +12.10 |
| | 15 | 71.7 | 70.90 | +2.07 | -8.82 | -0.56 | +19.44 | +12.13 |
| | 18 | 70.9 | 70.11 | +2.07 | -8.82 | -0.57 | +19.54 | +12.22 |
| | 20 | 70.0 | 69.22 | +2.06 | -8.81 | -0.57 | +19.57 | +12.25 |
| | 30 | 71.3 | 70.51 | +2.04 | -8.81 | -0.55 | +19.39 | +12.07 |
| | Oct. 4 | 71.5 | 70.70 | +2.03 | -8.80 | -0.53 | +19.16 | +11.86 |
| | 5 | 71.6 | 70.80 | +2.03 | -8.80 | -0.52 | +19.09 | +11.80 |
| | 8 | 71.8 | 71.00 | +2.02 | -8.80 | -0.50 | +18.83 | +11.55 |
| | 10 | 71.8 | 71.00 | +2.02 | -8.80 | -0.47 | +18.64 | +11.38 |
| | 19 | 72.5 | 71.69 | +1.99 | -8.79 | -0.35 | +17.48 | +10.33 |
| | 24 | 74.0 | 73.18 | +1.98 | -8.79 | -0.26 | +16.66 | +9.59 |
| | 31 | 75.2 | 74.36 | +1.96 | -8.78 | -0.13 | +15.28 | +8.33 |
| Nov. 1 | 76.4 | 75.55 | +1.96 | -8.77 | -0.11 | +15.08 | +8.16 | 83.71 |
| | 25 | 81.5 | 80.59 | +1.90 | -8.74 | +0.34 | +8.65 | +2.15 |
| | 28 | 82.5 | 81.58 | +1.89 | -8.73 | +0.39 | +7.70 | +1.25 |
| | Dec. 16 | 88.5 | 87.51 | +1.85 | -8.70 | +0.57 | +1.70 | -4.58 |
| | 17 | 88.3 | 87.32 | +1.85 | -8.70 | +0.57 | +1.33 | -4.95 |
| | 26 | 91.8 | 90.78 | +1.82 | -8.69 | +0.57 | -1.77 | -8.07 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 Jan. | 7 | 97.0 | 95.92 | +1.78 | -8.67 | +0.47 | - 6.19 | -12.61 83.31 |
| | 8 | 96.2 | 95.13 | +1.78 | -8.67 | +0.46 | - 6.52 | -12.95 82.18 |
| | 9 | 96.7 | 95.62 | +1.77 | -8.67 | +0.45 | - 6.84 | -13.29 82.33 |
| | 27 | 103.5 | 102.34 | +1.73 | -8.64 | +0.15 | -12.25 | -19.01 83.33 |
| | Feb. 4 | 104.9 | 103.73 | +1.72 | -8.62 | -0.02 | -14.27 | -21.19 82.54 |
| | 5 | 104.0 | 102.84 | +1.71 | -8.62 | -0.04 | -14.51 | -21.46 81.38 |
| | 21 | 109.0 | 107.70 | +1.68 | -8.59 | -0.33 | -17.95 | -25.19 82.60 |
| | 27 | 110.5 | 109.26 | +1.66 | -8.58 | -0.42 | -18.39 | -25.73 83.53 |
| | Mar. 18 | 110.5 | 109.26 | +1.61 | -8.54 | -0.57 | -19.58 | -27.08 82.18 |
| | 29 | 109.8 | 108.58 | +1.58 | -8.52 | -0.54 | -19.24 | -26.72 81.86 |
| Apr. | 31 | 109.5 | 108.28 | +1.58 | -8.51 | -0.53 | -19.10 | -26.56 81.72 |
| | 2 | 109.7 | 108.48 | +1.57 | -8.51 | -0.51 | -18.94 | -26.39 82.07 |
| | 4 | 108.2 | 107.00 | +1.57 | -8.50 | -0.49 | -18.77 | -26.19 80.81 |
| | 17 | 107.0 | 105.81 | +1.54 | -8.47 | -0.32 | -17.08 | -24.33 81.48 |
| | May 17 | 99.5 | 98.39 | +1.47 | -8.39 | +0.24 | -10.31 | -16.99 81.40 |
| | 21 | 99.0 | 97.90 | +1.46 | -8.37 | +0.30 | - 9.16 | -15.77 82.13 |
| | June 15 | 89.8 | 88.80 | +1.39 | -8.30 | +0.56 | - 1.39 | - 7.74 81.06 |
| | 16 | 89.6 | 88.60 | +1.39 | -8.30 | +0.57 | - 1.07 | - 7.41 81.19 |
| | 26 | 88.5 | 87.51 | +1.36 | -8.27 | +0.56 | + 2.18 | - 4.17 83.34 |
| | July 2 | 84.5 | 83.55 | +1.35 | -8.25 | +0.53 | + 4.11 | - 2.26 81.29 |
| Aug. | 3 | 84.6 | 83.65 | +1.35 | -8.25 | +0.52 | + 4.41 | - 1.97 81.68 |
| | 6 | 83.0 | 82.08 | +1.34 | -8.24 | +0.50 | + 5.36 | - 1.04 81.04 |
| | 11 | 83.0 | 82.08 | +1.32 | -8.23 | +0.45 | + 6.91 | + 0.45 82.53 |
| | 14 | 82.5 | 81.58 | +1.32 | -8.22 | +0.40 | + 7.81 | + 1.31 82.89 |
| | 24 | 77.8 | 76.93 | +1.29 | -8.19 | +0.25 | +10.68 | + 4.03 80.96 |
| | 29 | 77.5 | 76.63 | +1.28 | -8.16 | +0.17 | +12.01 | + 5.30 81.93 |
| | Aug. 6 | 77.0 | 76.14 | +1.26 | -8.14 | +0.02 | +13.95 | + 7.09 83.23 |
| | 8 | 75.0 | 74.16 | +1.26 | -8.13 | -0.02 | +14.41 | + 7.52 81.68 |
| | 13 | 75.0 | 74.16 | +1.24 | -8.11 | -0.12 | +15.46 | + 8.47 82.63 |
| | 16 | 74.0 | 73.18 | +1.24 | -8.10 | -0.18 | +16.04 | + 9.00 82.13 |
| Sept. | 23 | 74.0 | 73.18 | +1.22 | -8.07 | -0.30 | +17.25 | +10.10 83.28 |
| | 25 | 73.0 | 72.19 | +1.22 | -8.06 | -0.33 | +17.55 | +10.38 82.57 |
| | 26 | 72.0 | 71.20 | +1.21 | -8.06 | -0.35 | +17.69 | +10.49 81.69 |
| | 29 | 72.3 | 71.50 | +1.21 | -8.05 | -0.39 | +18.09 | +10.86 82.36 |
| | Sept. 2 | 72.3 | 71.50 | +1.19 | -8.03 | -0.44 | +18.56 | +11.28 82.78 |
| | 3 | 72.0 | 71.20 | +1.19 | -8.03 | -0.45 | +18.66 | +11.37 82.57 |
| | 5 | 71.2 | 70.41 | +1.19 | -8.02 | -0.48 | +18.84 | +11.53 81.94 |
| | 9 | 71.0 | 70.21 | +1.17 | -8.01 | -0.51 | +19.17 | +11.82 82.03 |
| | 12 | 71.0 | 70.21 | +1.17 | -8.00 | -0.53 | +19.34 | +11.98 82.19 |
| | 14 | 71.0 | 70.21 | +1.17 | -7.99 | -0.55 | +19.43 | +12.06 82.27 |
| Oct. | 15 | 71.0 | 70.21 | +1.16 | -7.99 | -0.56 | +19.47 | +12.08 82.29 |
| | 17 | 71.0 | 70.21 | +1.16 | -7.98 | -0.57 | +19.53 | +12.14 82.35 |
| | 20 | 70.5 | 69.71 | +1.15 | -7.97 | -0.57 | +19.57 | +12.18 81.89 |
| | 21 | 71.0 | 70.21 | +1.15 | -7.96 | -0.57 | +19.58 | +12.20 82.41 |
| | 22 | 70.5 | 69.71 | +1.15 | -7.96 | -0.57 | +19.57 | +12.19 81.90 |
| | 26 | 71.3 | 70.51 | +1.14 | -7.94 | -0.57 | +19.51 | +12.14 82.65 |
| | 27 | 70.7 | 69.91 | +1.14 | -7.94 | -0.57 | +19.48 | +12.11 82.02 |
| Nov. | 8 | 71.5 | 70.70 | +1.11 | -7.90 | -0.50 | +18.76 | +11.47 82.17 |
| | 9 | 72.0 | 71.20 | +1.11 | -7.90 | -0.48 | +18.67 | +11.40 82.60 |
| | 27 | 75.3 | 74.46 | +1.06 | -7.82 | -0.21 | +15.95 | + 8.98 83.44 |
| | 29 | 75.0 | 74.16 | +1.06 | -7.82 | -0.17 | +15.54 | + 8.61 82.77 |
| Nov. 2 | 75.0 | 74.16 | +1.05 | -7.80 | -0.09 | +14.68 | + 7.84 | 82.00 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1750 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 | Nov. 30 | 83.0 | 82.08 | +0.98 | -7.66 | +0.42 | + 6.82 | + 0.56 82.64 |
| | Dec. 4 | 83.5 | 82.57 | +0.97 | -7.65 | +0.47 | + 5.55 | - 0.66 81.91 |
| | 9 | 86.5 | 85.53 | +0.95 | -7.62 | +0.52 | + 3.82 | - 2.33 83.20 |
| | 10 | 86.3 | 85.34 | +0.95 | -7.62 | +0.53 | + 3.49 | - 2.65 82.69 |
| | 28 | 92.2 | 91.18 | +0.91 | -7.53 | +0.56 | - 2.75 | - 8.81 82.37 |
| | 30 | 92.5 | 91.47 | +0.90 | -7.52 | +0.55 | - 3.43 | - 9.50 81.97 |
| | 31 | 93.3 | 92.26 | +0.90 | -7.52 | +0.54 | - 3.78 | - 9.86 82.40 |
| | Jan. 1 | 93.0 | 91.16 | +0.90 | -7.51 | +0.53 | - 4.11 | - 10.19 81.77 |
| | Feb. 5 | 104.0 | 102.84 | +0.81 | -7.43 | -0.05 | -14.68 | - 21.35 81.49 |
| | 8 | 105.0 | 103.83 | +0.80 | -7.42 | -0.11 | -15.34 | - 22.07 81.76 |
| 1729 | 16 | 107.3 | 106.11 | +0.79 | -7.38 | -0.26 | -16.90 | - 23.75 82.36 |
| | 17 | 107.5 | 106.30 | +0.79 | -7.38 | -0.28 | -17.06 | - 23.93 82.37 |
| | 18 | 107.1 | 105.91 | +0.78 | -7.38 | -0.30 | -17.23 | - 24.13 81.78 |
| | 24 | 108.5 | 107.29 | +0.76 | -7.35 | -0.39 | -18.11 | - 25.09 82.20 |
| | 25 | 109.0 | 107.79 | +0.76 | -7.35 | -0.41 | -18.24 | - 25.24 82.55 |
| | Mar. 4 | 110.0 | 108.77 | +0.74 | -7.31 | -0.49 | -18.98 | - 26.04 82.73 |
| | 8 | 108.5 | 107.29 | +0.74 | -7.29 | -0.53 | -19.27 | - 26.35 80.94 |
| | 9 | 108.5 | 107.29 | +0.73 | -7.29 | -0.54 | -19.32 | - 26.42 80.87 |
| | 10 | 108.5 | 107.29 | +0.73 | -7.28 | -0.55 | -19.38 | - 26.48 80.81 |
| | 12 | 110.0 | 108.77 | +0.73 | -7.28 | -0.56 | -19.46 | - 26.57 82.20 |
| | 16 | 108.8 | 107.59 | +0.71 | -7.26 | -0.57 | -19.56 | - 26.68 80.91 |
| | 17 | 109.5 | 108.28 | +0.71 | -7.26 | -0.57 | -19.57 | - 26.69 81.59 |
| Apr. | 28 | 108.7 | 107.49 | +0.68 | -7.20 | -0.55 | -19.31 | - 26.38 81.11 |
| | 29 | 110.0 | 108.77 | +0.68 | -7.20 | -0.54 | -19.26 | - 26.32 82.45 |
| | 31 | 108.0 | 106.80 | +0.68 | -7.19 | -0.53 | -19.12 | - 26.14 80.66 |
| | 27 | 105.5 | 104.32 | +0.61 | -7.06 | -0.14 | -15.28 | - 21.87 82.45 |
| | June 13 | 91.0 | 89.99 | +0.50 | -6.82 | +0.55 | - 2.12 | - 7.89 82.10 |
| | 16 | 89.5 | 88.50 | +0.49 | -6.80 | +0.57 | - 1.15 | - 6.88 81.62 |
| | 18 | 89.0 | 88.01 | +0.48 | -6.79 | +0.57 | - 0.51 | - 6.25 81.76 |
| | 20 | 90.0 | 89.00 | +0.48 | -6.78 | +0.58 | + 0.16 | - 5.56 83.44 |
| July | 1 | 84.0 | 83.06 | +0.45 | -6.73 | +0.54 | + 3.71 | - 2.03 81.03 |
| | 5 | 84.5 | 83.55 | +0.44 | -6.71 | +0.51 | + 4.97 | - 0.79 82.76 |
| | 12 | 81.5 | 80.59 | +0.42 | -6.67 | +0.43 | + 7.14 | + 1.32 81.91 |
| | 21 | 79.0 | 78.12 | +0.40 | -6.62 | +0.31 | + 9.77 | + 3.86 81.98 |
| | Aug. 7 | 74.8 | 73.97 | +0.36 | -6.53 | 0.00 | +14.11 | + 7.94 81.91 |
| | 8 | 75.0 | 74.16 | +0.36 | -6.52 | -0.02 | +14.35 | + 8.17 82.33 |
| | 9 | 75.5 | 74.65 | +0.36 | -6.52 | -0.04 | +14.57 | + 8.37 83.02 |
| | 16 | 75.5 | 74.65 | +0.34 | -6.48 | -0.18 | +15.99 | + 9.67 84.32 |
| | 17 | 71.5 | 70.70 | +0.33 | -6.47 | -0.19 | +16.18 | + 9.85 80.55 |
| | 21 | 71.5 | 70.70 | +0.32 | -6.45 | -0.26 | +16.89 | + 10.50 81.20 |
| Sept. | 23 | 72.0 | 71.20 | +0.32 | -6.44 | -0.30 | +17.21 | + 10.79 81.99 |
| | 24 | 72.2 | 71.40 | +0.32 | -6.43 | -0.31 | +17.36 | + 10.94 82.34 |
| | 28 | 72.0 | 71.20 | +0.31 | -6.41 | -0.38 | +17.94 | + 11.46 82.66 |
| | 30 | 70.7 | 69.91 | +0.30 | -6.40 | -0.40 | +18.19 | + 11.69 81.60 |
| | 3 | 69.0 | 68.23 | +0.29 | -6.38 | -0.45 | +18.63 | + 12.08 80.32 |
| | 5 | 70.5 | 69.71 | +0.29 | -6.36 | -0.48 | +18.82 | + 12.27 81.98 |
| | 8 | 70.0 | 69.22 | +0.28 | -6.35 | -0.51 | +19.08 | + 12.50 81.72 |
| | 9 | 70.2 | 69.42 | +0.28 | -6.34 | -0.52 | +19.15 | + 12.57 81.99 |
| | 11 | 70.5 | 69.71 | +0.27 | -6.33 | -0.53 | +19.27 | + 12.68 82.39 |
| | 13 | 70.5 | 69.71 | +0.27 | -6.32 | -0.54 | +19.38 | + 12.79 82.50 |
| | 19 | 70.2 | 69.42 | +0.26 | -6.28 | -0.57 | +19.56 | + 12.97 82.39 |
| | 20 | 70.2 | 69.42 | +0.25 | -6.27 | -0.57 | +19.57 | + 12.98 82.40 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 | |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|-------|
| | Division of Microm. | Seconds | | | | | | | |
| 1729 | Sept. 24 | 69.6 | 68.82 | +0.25 | -6.26 | -0.57 | +19.56 | +12.98 | 81.80 |
| | 29 | 69.8 | 69.02 | +0.23 | -6.23 | -0.56 | +19.41 | +12.85 | 81.87 |
| | Oct. 15 | 71.5 | 70.70 | +0.19 | -6.14 | -0.41 | +18.36 | +12.00 | 82.70 |
| | 29 | 73.0 | 72.19 | +0.16 | -6.06 | -0.17 | +15.60 | + 9.53 | 81.72 |
| | Nov. 4 | 75.0 | 74.16 | +0.14 | -6.02 | -0.06 | +14.28 | + 8.34 | 82.50 |
| | Dec. 2 | 82.5 | 81.58 | +0.07 | -5.85 | +0.44 | + 6.26 | + 0.92 | 82.50 |
| | 7 | 84.0 | 83.06 | +0.06 | -5.82 | +0.50 | + 4.58 | - 0.68 | 82.38 |
| | 9 | 85.0 | 84.05 | +0.05 | -5.80 | +0.52 | + 3.92 | - 1.31 | 82.74 |
| | 11 | 85.3 | 84.35 | +0.05 | -5.79 | +0.53 | + 3.24 | - 1.97 | 82.38 |
| | 14 | 86.0 | 85.04 | +0.04 | -5.77 | +0.56 | + 2.22 | - 2.95 | 82.09 |
| | 17 | 87.5 | 86.52 | +0.04 | -5.75 | +0.57 | + 1.16 | - 3.98 | 82.54 |
| | 21 | 88.5 | 87.51 | +0.02 | -5.73 | +0.57 | - 0.22 | - 5.36 | 82.15 |
| 1730 | 26 | 90.5 | 89.49 | +0.01 | -5.70 | +0.57 | - 1.97 | - 7.09 | 82.40 |
| | Mar. 21 | 107.3 | 106.11 | -0.20 | -5.14 | -0.58 | -19.56 | -25.48 | 80.63 |
| | 27 | 108.0 | 106.80 | -0.21 | -5.10 | -0.55 | -19.46 | -25.32 | 81.48 |
| | 29 | 107.2 | 106.01 | -0.22 | -5.09 | -0.54 | -19.27 | -25.12 | 80.89 |
| | June 17 | 87.7 | 86.72 | -0.41 | -4.54 | +0.57 | - 0.91 | - 5.29 | 81.43 |
| | 18 | 87.5 | 86.52 | -0.41 | -4.53 | +0.57 | - 0.58 | - 4.95 | 81.57 |
| | Aug. 28 | 70.0 | 69.22 | -0.59 | -4.03 | -0.38 | +17.89 | +12.89 | 82.11 |
| | 29 | 70.3 | 69.52 | -0.59 | -4.02 | -0.39 | +18.03 | +13.03 | 82.55 |
| | Sept. 3 | 69.0 | 68.23 | -0.61 | -3.98 | -0.45 | +18.61 | +13.57 | 81.80 |
| | 4 | 69.2 | 68.43 | -0.61 | -3.97 | -0.47 | +18.71 | +13.66 | 82.09 |
| | 5 | 69.3 | 68.53 | -0.61 | -3.97 | -0.48 | +18.80 | +13.74 | 82.27 |
| 1731 | 6 | 69.0 | 68.23 | -0.62 | -3.96 | -0.49 | +18.89 | +13.82 | 82.05 |
| | 11 | 69.0 | 68.23 | -0.63 | -3.92 | -0.53 | +19.27 | +14.19 | 82.42 |
| | 12 | 69.0 | 68.23 | -0.63 | -3.91 | -0.54 | +19.32 | +14.24 | 82.47 |
| | 18 | 69.0 | 68.23 | -0.64 | -3.87 | -0.57 | +19.54 | +14.46 | 82.64 |
| | 19 | 69.0 | 68.23 | -0.64 | -3.87 | -0.57 | +19.55 | +14.47 | 82.70 |
| | 20 | 68.0 | 67.24 | -0.65 | -3.86 | -0.57 | +19.57 | +14.49 | 81.73 |
| | 27 | 68.7 | 67.93 | -0.66 | -3.81 | -0.57 | +19.49 | +14.45 | 82.38 |
| | 29 | 67.8 | 67.04 | -0.67 | -3.79 | -0.56 | +19.42 | +14.40 | 81.44 |
| | Oct. 1 | 68.6 | 67.93 | -0.67 | -3.78 | -0.55 | +19.33 | +14.33 | 82.26 |
| | 3 | 67.9 | 67.14 | -0.68 | -3.76 | -0.53 | +19.31 | +14.24 | 81.38 |
| 1732 | Dec. 20 | 86.6 | 85.63 | -0.87 | -3.71 | +0.57 | + 0.21 | - 3.26 | 82.37 |
| | 23 | 87.8 | 86.82 | -0.88 | -3.15 | +0.57 | - 0.83 | - 4.29 | 82.53 |
| | 26 | 88.5 | 87.51 | -0.89 | -3.13 | +0.57 | - 1.86 | - 5.31 | 82.20 |
| | Jan. 4 | 91.5 | 90.48 | -0.91 | -3.05 | +0.49 | - 5.29 | - 8.76 | 81.72 |
| | 15 | 95.0 | 93.94 | -0.94 | -2.96 | +0.34 | - 8.87 | -12.43 | 81.51 |
| | Feb. 14 | 105.0 | 103.83 | -1.01 | -2.70 | -0.23 | -16.45 | -20.39 | 83.44 |
| | 17 | 105.0 | 103.83 | -1.02 | -2.68 | -0.28 | -16.98 | -20.96 | 82.87 |
| | 18 | 105.7 | 104.52 | -1.02 | -2.67 | -0.30 | -17.15 | -21.14 | 83.38 |
| | Aug. 25 | 69.3 | 68.53 | -1.48 | -1.26 | -0.33 | +17.44 | +14.37 | 82.90 |
| | 28 | 68.5 | 67.73 | -1.49 | -1.24 | -0.38 | +17.86 | +14.75 | 82.48 |
| 1733 | 29 | 68.5 | 67.73 | -1.49 | -1.23 | -0.39 | +18.00 | +14.89 | 82.62 |
| | 31 | 67.0 | 66.25 | -1.50 | -1.22 | -0.42 | +18.25 | +15.11 | 81.36 |
| | Sept. 1 | 67.7 | 66.94 | -1.50 | -1.21 | -0.43 | +18.37 | +15.23 | 82.17 |
| | 2 | 67.8 | 67.04 | -1.51 | -1.21 | -0.44 | +18.48 | +15.32 | 82.36 |
| | 3 | 67.8 | 67.04 | -1.51 | -1.20 | -0.45 | +18.58 | +15.42 | 82.46 |
| | 14 | 67.2 | 66.45 | -1.53 | -1.13 | -0.55 | +19.40 | +16.19 | 82.64 |
| | 18 | 67.0 | 66.25 | -1.54 | -1.11 | -0.57 | +19.54 | +16.32 | 82.57 |
| | 21 | 66.5 | 65.75 | -1.55 | -1.09 | -0.57 | +19.58 | +16.37 | 82.12 |
| | 23 | 67.0 | 66.25 | -1.55 | -1.07 | -0.57 | +19.57 | +16.38 | 82.63 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1731 Sept. 24 | 67.0 | 66.25 | -1.55 | -1.07 | -0.57 | +19.56 | +16.37 | 82.62 |
| | 26 | 66.2 | 65.46 | -1.56 | -1.05 | -0.57 | +19.53 | +16.35 |
| | 30 | 67.8 | 67.04 | -1.57 | -1.03 | -0.55 | +19.39 | +16.24 |
| | Oct. 1 | 66.8 | 66.05 | -1.57 | -1.02 | -0.55 | +19.34 | +16.24 |
| | 3 | 67.3 | 66.55 | -1.58 | -1.01 | -0.53 | +19.22 | +16.10 |
| | 6 | 67.5 | 66.74 | -1.59 | -0.99 | -0.52 | +19.01 | +15.91 |
| | 13 | 68.7 | 67.93 | -1.60 | -0.95 | -0.43 | +18.31 | +15.33 |
| | 15 | 69.0 | 68.23 | -1.61 | -0.93 | -0.41 | +18.05 | +15.10 |
| | Dec. 29 | 88.0 | 87.02 | -1.80 | -0.52 | +0.55 | -2.83 | -4.60 |
| | 1732 Jan. 11 | 92.0 | 90.98 | -1.83 | -0.52 | +0.42 | -7.51 | -9.17 |
| Sept. 13 | 95.5 | 94.43 | -1.85 | -0.16 | +0.28 | -10.26 | -11.99 | 82.44 |
| | 65.7 | 64.97 | -2.43 | +1.99 | -0.54 | +19.39 | +18.41 | 83.38 |
| | 14 | 64.7 | 63.98 | -2.43 | +2.00 | -0.55 | +19.43 | +18.45 |
| | 15 | 66.0 | 65.26 | -2.44 | +2.01 | -0.56 | +19.47 | +18.48 |
| | 16 | 64.5 | 63.78 | -2.44 | +2.02 | -0.56 | +19.50 | +18.52 |
| | 17 | 65.0 | 64.28 | -2.44 | +2.03 | -0.57 | +19.53 | +18.55 |
| | 1733 Feb. 1 | 96.0 | 94.93 | -2.77 | +3.12 | +0.03 | -13.74 | -13.36 |
| Sept. 5 | 2 | 96.7 | 95.62 | -2.77 | +3.12 | +0.01 | -13.99 | -13.63 |
| | 61.0 | 60.32 | -3.30 | +4.73 | -0.48 | +18.82 | +19.77 | 80.09 |
| | 6 | 62.0 | 61.31 | -3.31 | +4.74 | -0.49 | +18.91 | +19.85 |
| | 9 | 61.5 | 60.81 | -3.31 | +4.76 | -0.52 | +19.15 | +20.08 |
| | 1734 June 30 | 75.0 | 74.16 | -4.02 | +6.67 | +0.55 | +3.32 | +6.52 |
| July 2 | 74.0 | 73.18 | -4.03 | +6.68 | +0.53 | +3.95 | +7.13 | 80.31 |
| | 16 | 72.5 | 71.64 | -4.06 | +6.76 | +0.38 | +8.26 | +11.34 |
| | 21 | 69.3 | 68.53 | -4.08 | +6.79 | +0.31 | +9.71 | +12.73 |
| | 27 | 68.0 | 67.24 | -4.09 | +6.82 | +0.20 | +11.34 | +14.27 |
| | Aug. 9 | 64.5 | 63.78 | -4.12 | +6.89 | -0.04 | +14.52 | +17.25 |
| | 14 | 65.2 | 64.48 | -4.14 | +6.92 | -0.14 | +15.56 | +18.20 |
| | 18 | 62.5 | 61.80 | -4.15 | +6.94 | -0.21 | +16.32 | +18.90 |
| 1735 Jan. 2 | 19 | 62.7 | 62.00 | -4.15 | +6.95 | -0.23 | +16.51 | +19.08 |
| | 22 | 63.0 | 62.30 | -4.16 | +6.97 | -0.28 | +17.01 | +19.54 |
| | Dec. 22 | 79.5 | 78.61 | -4.46 | +7.57 | +0.57 | -0.49 | +3.19 |
| | 3 | 83.3 | 82.38 | -4.49 | +7.64 | +0.51 | -4.62 | -0.96 |
| | 3 | 84.3 | 83.36 | -4.49 | +7.64 | +0.50 | -4.96 | -1.31 |
| | 7 | 86.0 | 85.04 | -4.50 | +7.66 | +0.46 | -6.25 | -2.63 |
| | Sept. 20 | 61.0 | 60.42 | -5.13 | +8.58 | -0.57 | +19.57 | +22.45 |
| 1736 Aug. 11 | 21 | 60.7 | 60.02 | -5.13 | +8.58 | -0.57 | +19.58 | +22.46 |
| | 24 | 59.5 | 58.83 | -5.13 | +8.59 | -0.57 | +19.56 | +22.45 |
| | 59.8 | 59.13 | -6.00 | +9.05 | -0.53 | +19.29 | +21.81 | 80.94 |
| | Sept. 19 | 59.5 | 58.83 | -6.01 | +9.05 | -0.57 | +19.56 | +22.03 |
| | 20 | 60.0 | 59.33 | -6.01 | +9.05 | -0.57 | +19.57 | +22.04 |
| 1737 Jan. 14 | 86.5 | 85.53 | -6.30 | +8.98 | +0.36 | -8.69 | -5.65 | 79.88 |
| | 15 | 87.5 | 86.52 | -6.30 | +8.98 | +0.35 | -9.00 | -5.97 |
| | 30 | 92.8 | 91.77 | -6.33 | +8.96 | +0.07 | -13.25 | -10.55 |
| | Sept. 12 | 61.5 | 60.81 | -6.89 | +8.49 | -0.54 | +19.33 | +20.39 |
| | 13 | 60.3 | 59.63 | -6.89 | +8.49 | -0.54 | +19.38 | +20.44 |
| | 17 | 61.5 | 60.81 | -6.90 | +8.48 | -0.57 | +19.52 | +20.53 |
| | 18 | 61.8 | 61.11 | -6.90 | +8.48 | -0.57 | +19.55 | +20.56 |
| | 19 | 60.8 | 60.12 | -6.90 | +8.47 | -0.57 | +19.56 | +20.56 |
| | 21 | 62.3 | 61.61 | -6.91 | +8.46 | -0.57 | +19.58 | +20.56 |
| | 23 | 81.7 | 80.79 | -7.14 | +8.16 | +0.57 | -0.95 | +0.64 |
| 1738 Aug. 5 | 68.0 | 67.24 | -7.68 | +7.17 | +0.03 | +13.61 | +13.13 | 80.37 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1729 | Sept. 24 | 69.6 | 68.82 | +0.25 | -6.26 | -0.57 | +19.56 | +12.98 81.80 |
| | 29 | 69.8 | 69.02 | +0.23 | -6.23 | -0.56 | +19.41 | +12.85 81.87 |
| | Oct. 15 | 71.5 | 70.70 | +0.19 | -6.14 | -0.41 | +18.36 | +12.00 82.70 |
| | 29 | 73.0 | 72.19 | +0.16 | -6.06 | -0.17 | +15.60 | + 9.53 81.72 |
| | Nov. 4 | 75.0 | 74.16 | +0.14 | -6.02 | -0.06 | +14.28 | + 8.34 82.50 |
| | Dec. 2 | 82.5 | 81.58 | +0.07 | -5.85 | +0.44 | + 6.26 | + 0.92 82.50 |
| | 7 | 84.0 | 83.06 | +0.06 | -5.82 | +0.50 | + 4.58 | - 0.68 82.38 |
| | 9 | 85.0 | 84.05 | +0.05 | -5.80 | +0.52 | + 3.92 | - 1.31 82.74 |
| | 11 | 85.3 | 84.35 | +0.05 | -5.79 | +0.53 | + 3.24 | - 1.97 82.38 |
| | 14 | 86.0 | 85.04 | +0.04 | -5.77 | +0.56 | + 2.22 | - 2.95 82.09 |
| | 17 | 87.5 | 86.52 | +0.04 | -5.75 | +0.57 | + 1.16 | - 3.98 82.54 |
| | 21 | 88.5 | 87.51 | +0.02 | -5.73 | +0.57 | - 0.22 | - 5.36 82.15 |
| 1730 | 26 | 90.5 | 89.49 | +0.01 | -5.70 | +0.57 | - 1.97 | - 7.09 82.40 |
| | Mar. 21 | 107.3 | 106.11 | -0.20 | -5.14 | -0.58 | -19.56 | -25.48 80.63 |
| | 27 | 108.0 | 106.80 | -0.21 | -5.10 | -0.55 | -19.46 | -25.32 81.48 |
| | 29 | 107.2 | 106.01 | -0.22 | -5.09 | -0.54 | -19.27 | -25.12 80.89 |
| | June 17 | 87.7 | 86.72 | -0.41 | -4.54 | +0.57 | - 0.91 | - 5.29 81.43 |
| | 18 | 87.5 | 86.52 | -0.41 | -4.53 | +0.57 | - 0.58 | - 4.95 81.57 |
| | Aug. 28 | 70.0 | 69.22 | -0.59 | -4.03 | -0.38 | +17.89 | +12.89 82.11 |
| | 29 | 70.3 | 69.52 | -0.59 | -4.02 | -0.39 | +18.03 | +13.03 82.55 |
| | Sept. 3 | 69.0 | 68.23 | -0.61 | -3.98 | -0.45 | +18.61 | +13.57 81.80 |
| | 4 | 69.2 | 68.43 | -0.61 | -3.97 | -0.47 | +18.71 | +13.66 82.09 |
| | 5 | 69.3 | 68.53 | -0.61 | -3.97 | -0.48 | +18.80 | +13.74 82.27 |
| | 6 | 69.0 | 68.23 | -0.62 | -3.96 | -0.49 | +18.89 | +13.82 82.05 |
| 1731 | 11 | 69.0 | 68.23 | -0.63 | -3.92 | -0.53 | +19.27 | +14.19 82.42 |
| | 12 | 69.0 | 68.23 | -0.63 | -3.91 | -0.54 | +19.32 | +14.24 82.47 |
| | 18 | 69.0 | 68.23 | -0.64 | -3.87 | -0.57 | +19.54 | +14.46 82.64 |
| | 19 | 69.0 | 68.23 | -0.64 | -3.87 | -0.57 | +19.55 | +14.47 82.70 |
| | 20 | 68.0 | 67.24 | -0.65 | -3.86 | -0.57 | +19.57 | +14.49 81.73 |
| | 27 | 68.7 | 67.93 | -0.66 | -3.81 | -0.57 | +19.49 | +14.45 82.38 |
| | 29 | 67.8 | 67.04 | -0.67 | -3.79 | -0.56 | +19.42 | +14.40 81.44 |
| | Oct. 1 | 68.6 | 67.93 | -0.67 | -3.78 | -0.55 | +19.33 | +14.33 82.26 |
| | 3 | 67.9 | 67.14 | -0.68 | -3.76 | -0.53 | +19.31 | +14.24 81.38 |
| | Dec. 20 | 86.6 | 85.63 | -0.87 | -3.71 | +0.57 | + 0.21 | - 3.26 82.37 |
| | 23 | 87.8 | 86.82 | -0.88 | -3.15 | +0.57 | - 0.83 | - 4.29 82.53 |
| 1732 | 26 | 88.5 | 87.51 | -0.89 | -3.13 | +0.57 | - 1.86 | - 5.31 82.20 |
| | Jan. 4 | 91.5 | 90.48 | -0.91 | -3.05 | +0.49 | - 5.29 | - 8.76 81.72 |
| | 15 | 95.0 | 93.94 | -0.94 | -2.96 | +0.34 | - 8.87 | -12.43 81.51 |
| | Feb. 14 | 105.0 | 103.83 | -1.01 | -2.70 | -0.23 | -16.45 | -20.39 83.44 |
| | 17 | 105.0 | 103.83 | -1.02 | -2.68 | -0.28 | -16.98 | -20.96 82.87 |
| | 18 | 105.7 | 104.52 | -1.02 | -2.67 | -0.30 | -17.15 | -21.14 83.38 |
| | Aug. 25 | 69.3 | 68.53 | -1.48 | -1.26 | -0.33 | +17.44 | +14.37 82.90 |
| | 28 | 68.5 | 67.73 | -1.49 | -1.24 | -0.38 | +17.86 | +14.75 82.48 |
| | 29 | 68.5 | 67.73 | -1.49 | -1.23 | -0.39 | +18.00 | +14.89 82.62 |
| | 31 | 67.0 | 66.25 | -1.50 | -1.22 | -0.42 | +18.25 | +15.11 81.36 |
| | Sept. 1 | 67.7 | 66.94 | -1.50 | -1.21 | -0.43 | +18.37 | +15.23 82.17 |
| | 2 | 67.8 | 67.04 | -1.51 | -1.21 | -0.44 | +18.48 | +15.32 82.36 |
| | 3 | 67.8 | 67.04 | -1.51 | -1.20 | -0.45 | +18.58 | +15.42 82.46 |
| | 14 | 67.2 | 66.45 | -1.53 | -1.13 | -0.55 | +19.40 | +16.19 82.64 |
| | 18 | 67.0 | 66.25 | -1.54 | -1.11 | -0.57 | +19.54 | +16.32 82.57 |
| | 21 | 66.5 | 65.75 | -1.55 | -1.09 | -0.57 | +19.58 | +16.37 82.12 |
| | 23 | 67.0 | 66.25 | -1.55 | -1.07 | -0.57 | +19.57 | +16.38 82.63 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Micron. | Seconds | | | | | | |
| 1731 Sept. 24 | 67.0 | 66.25 | -1.55 | -1.07 | -0.57 | +19.56 | +16.37 | 82.62 |
| | 26 | 66.2 | 65.46 | -1.56 | -1.05 | -0.57 | +19.53 | +16.35 |
| | 30 | 67.8 | 67.04 | -1.57 | -1.03 | -0.55 | +19.39 | +16.24 |
| | Oct. 1 | 66.8 | 66.05 | -1.57 | -1.02 | -0.55 | +19.34 | +16.24 |
| | 3 | 67.3 | 66.55 | -1.58 | -1.01 | -0.53 | +19.22 | +16.10 |
| | 6 | 67.5 | 66.74 | -1.59 | -0.99 | -0.52 | +19.01 | +15.91 |
| | 13 | 68.7 | 67.93 | -1.60 | -0.95 | -0.43 | +18.31 | +15.33 |
| | 15 | 69.0 | 68.23 | -1.61 | -0.93 | -0.41 | +18.05 | +15.10 |
| | Dec. 29 | 88.0 | 87.02 | -1.80 | -0.52 | +0.55 | -2.83 | -4.60 |
| | 1732 Jan. 11 | 92.0 | 90.98 | -1.83 | -0.52 | +0.42 | -7.51 | -9.17 |
| 1733 Feb. 1 | 20 | 95.5 | 94.43 | -1.85 | -0.16 | +0.28 | -10.26 | -11.99 |
| | Sept. 13 | 65.7 | 64.97 | -2.43 | +1.99 | -0.54 | +19.39 | +18.41 |
| | 14 | 64.7 | 63.98 | -2.43 | +2.00 | -0.55 | +19.43 | +18.45 |
| | 15 | 66.0 | 65.26 | -2.44 | +2.01 | -0.56 | +19.47 | +18.48 |
| | 16 | 64.5 | 63.78 | -2.44 | +2.02 | -0.56 | +19.50 | +18.52 |
| | 17 | 65.0 | 64.28 | -2.44 | +2.03 | -0.57 | +19.53 | +18.55 |
| | 1734 June 30 | 96.0 | 94.93 | -2.77 | +3.12 | +0.03 | -13.74 | -13.36 |
| | July 2 | 96.7 | 95.62 | -2.77 | +3.12 | +0.01 | -13.99 | -13.63 |
| | Sept. 5 | 61.0 | 60.32 | -3.30 | +4.73 | -0.48 | +18.82 | +19.77 |
| | 6 | 62.0 | 61.31 | -3.31 | +4.74 | -0.49 | +18.91 | +19.85 |
| 1735 Jan. 2 | 9 | 61.5 | 60.81 | -3.31 | +4.76 | -0.52 | +19.15 | +20.08 |
| | June 30 | 75.0 | 74.16 | -4.02 | +6.67 | +0.55 | +3.32 | +6.52 |
| | July 2 | 74.0 | 73.18 | -4.03 | +6.68 | +0.53 | +3.95 | +7.13 |
| | 16 | 72.5 | 71.64 | -4.06 | +6.76 | +0.38 | +8.26 | +11.34 |
| | 21 | 69.3 | 68.53 | -4.08 | +6.79 | +0.31 | +9.71 | +12.73 |
| | 27 | 68.0 | 67.24 | -4.09 | +6.82 | +0.20 | +11.34 | +14.27 |
| | Aug. 9 | 64.5 | 63.78 | -4.12 | +6.89 | -0.04 | +14.52 | +17.25 |
| | 14 | 65.2 | 64.48 | -4.14 | +6.92 | -0.14 | +15.56 | +18.20 |
| | 18 | 62.5 | 61.80 | -4.15 | +6.94 | -0.21 | +16.32 | +18.90 |
| | 19 | 62.7 | 62.00 | -4.15 | +6.95 | -0.23 | +16.51 | +19.08 |
| 1736 Aug. 11 | 22 | 63.0 | 62.30 | -4.16 | +6.97 | -0.28 | +17.01 | +19.54 |
| | Dec. 22 | 79.5 | 78.61 | -4.46 | +7.57 | +0.57 | -0.49 | +3.19 |
| | 1735 Jan. 2 | 83.3 | 82.38 | -4.49 | +7.64 | +0.51 | -4.62 | -0.96 |
| | 3 | 84.3 | 83.36 | -4.49 | +7.64 | +0.50 | -4.96 | -1.31 |
| | 7 | 86.0 | 85.04 | -4.50 | +7.66 | +0.46 | -6.25 | -2.63 |
| | Sept. 20 | 61.0 | 60.42 | -5.13 | +8.58 | -0.57 | +19.57 | +22.45 |
| | 21 | 60.7 | 60.02 | -5.13 | +8.58 | -0.57 | +19.58 | +22.46 |
| | 24 | 59.5 | 58.83 | -5.13 | +8.59 | -0.57 | +19.56 | +22.45 |
| | 1736 Aug. 11 | 59.8 | 59.13 | -6.00 | +9.05 | -0.53 | +19.29 | +21.81 |
| | Sept. 19 | 59.5 | 58.83 | -6.01 | +9.05 | -0.57 | +19.56 | +22.03 |
| 1737 Jan. 14 | 20 | 60.0 | 59.33 | -6.01 | +9.05 | -0.57 | +19.57 | +22.04 |
| | 14 | 86.5 | 85.53 | -6.30 | +8.98 | +0.36 | -8.69 | -5.65 |
| | 15 | 87.5 | 86.52 | -6.30 | +8.98 | +0.35 | -9.00 | -5.97 |
| | 30 | 92.8 | 91.77 | -6.33 | +8.96 | +0.07 | -13.25 | -10.55 |
| | Sept. 12 | 61.5 | 60.81 | -6.89 | +8.49 | -0.54 | +19.33 | +20.39 |
| | 13 | 60.3 | 59.63 | -6.89 | +8.49 | -0.54 | +19.38 | +20.44 |
| | 17 | 61.5 | 60.81 | -6.90 | +8.48 | -0.57 | +19.52 | +20.53 |
| | 18 | 61.8 | 61.11 | -6.90 | +8.48 | -0.57 | +19.55 | +20.56 |
| | 19 | 60.8 | 60.12 | -6.90 | +8.47 | -0.57 | +19.56 | +20.56 |
| | 21 | 62.3 | 61.61 | -6.91 | +8.46 | -0.57 | +19.58 | +20.56 |
| 1738 Aug. 5 | 23 | 81.7 | 80.79 | -7.14 | +8.16 | +0.57 | -0.95 | +0.64 |
| | 5 | 68.0 | 67.24 | -7.68 | +7.17 | +0.03 | +13.61 | +13.13 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Sum | Aberration | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|--------|------------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1738 Aug. 8 | 66.2 | 65.46 | — 7.69 | +7.16 | —0.02 | +14.29 | +13.74 | 79.20 |
| | 9 | 65.7 | 64.97 | — 7.69 | +7.15 | —0.04 | +14.52 | +13.94 |
| | Sept. 20 | 62.3 | 61.61 | — 7.80 | +6.95 | —0.57 | +19.57 | +18.15 |
| | 23 | 61.7 | 61.01 | — 7.80 | +6.94 | —0.57 | +19.57 | +18.14 |
| | 24 | 61.8 | 61.11 | — 7.80 | +6.94 | —0.57 | +19.56 | +18.13 |
| | 25 | 63.7 | 62.99 | — 7.81 | +6.93 | —0.57 | +19.54 | +18.09 |
| | 26 | 63.3 | 62.60 | — 7.81 | +6.93 | —0.57 | +19.52 | +18.07 |
| | 27 | 63.2 | 62.50 | — 7.81 | +6.92 | —0.57 | +19.49 | +18.03 |
| | 1739 Jan. 10 | 91.5 | 90.48 | — 8.06 | +6.26 | +0.46 | — 7.25 | — 8.59 |
| | 25 | 96.0 | 94.93 | — 8.09 | +6.17 | +0.17 | —11.78 | —13.53 |
| 1739 Feb. 4 | 96.2 | 95.13 | — 8.09 | +6.16 | +0.15 | —12.05 | —13.83 | 81.30 |
| | Aug. 29 | 98.5 | 97.40 | — 8.12 | +6.10 | —0.03 | —14.34 | —16.39 |
| | 30 | 68.0 | 67.24 | — 8.62 | +4.73 | —0.39 | +18.00 | +13.76 |
| | 31 | 68.0 | 67.24 | — 8.63 | +4.72 | —0.40 | +18.13 | +13.82 |
| | Sept. 4 | 69.0 | 68.23 | — 8.63 | +4.72 | —0.42 | +18.25 | +13.92 |
| | 6 | 67.9 | 67.14 | — 8.64 | +4.68 | —0.47 | +18.68 | +14.25 |
| | 7 | 67.7 | 66.94 | — 8.65 | +4.67 | —0.49 | +18.87 | +14.40 |
| | 9 | 67.5 | 66.74 | — 8.65 | +4.66 | —0.50 | +18.95 | +14.46 |
| | 10 | 67.2 | 66.45 | — 8.65 | +4.65 | —0.52 | +19.11 | +14.59 |
| | 11 | 68.0 | 67.24 | — 8.66 | +4.64 | —0.52 | +19.18 | +14.64 |
| 1740 Jan. 31 | 67.8 | 67.04 | — 8.66 | +4.63 | —0.53 | +19.24 | +14.68 | 81.72 |
| | 13 | 67.3 | 66.55 | — 8.66 | +4.62 | —0.54 | +19.38 | +14.80 |
| | Feb. 6 | 100.7 | 99.58 | — 8.98 | +3.79 | +0.07 | —13.31 | —18.63 |
| | Aug. 20 | 104.3 | 103.14 | — 9.00 | +3.54 | —0.05 | —14.75 | —20.24 |
| | 29 | 73.5 | 72.68 | — 9.48 | +1.92 | —0.25 | +16.77 | + 8.96 |
| | 30 | 72.2 | 71.40 | — 9.50 | +1.85 | —0.39 | +18.11 | +10.07 |
| | Sept. 1 | 72.2 | 71.40 | — 9.50 | +1.84 | —0.40 | +18.24 | +10.18 |
| | 4 | 71.2 | 70.41 | — 9.51 | +1.81 | —0.43 | +18.45 | +10.32 |
| | 5 | 72.2 | 71.40 | — 9.52 | +1.79 | —0.47 | +18.75 | +10.55 |
| | 8 | 71.0 | 70.21 | — 9.52 | +1.78 | —0.48 | +18.85 | +10.63 |
| 1741 Feb. 6 | 71.5 | 70.70 | — 9.53 | +1.75 | —0.51 | +19.10 | +10.81 | 81.51 |
| | 9 | 72.4 | 71.60 | — 9.53 | +1.74 | —0.52 | +19.17 | +10.86 |
| | 10 | 71.8 | 71.00 | — 9.54 | +1.73 | —0.52 | +19.23 | +10.90 |
| | 16 | 71.6 | 70.80 | — 9.55 | +1.68 | —0.56 | +19.50 | +11.07 |
| | 19 | 72.2 | 71.40 | — 9.55 | +1.65 | —0.57 | +19.56 | +11.09 |
| | Oct. 1 | 72.5 | 71.69 | — 9.58 | +1.53 | —0.55 | +19.29 | +10.69 |
| | Sept. 7 | 107.7 | 106.50 | — 9.88 | +0.09 | —0.05 | —14.91 | —24.75 |
| | 8 | 76.3 | 75.45 | —10.41 | —1.14 | —0.50 | +19.00 | + 6.95 |
| | 9 | 76.4 | 75.55 | —10.41 | —1.15 | —0.51 | +19.08 | + 7.01 |
| | 11 | 76.2 | 75.35 | —10.41 | —1.16 | —0.52 | +19.15 | + 7.06 |
| 1742 Sept. 16 | 75.7 | 74.85 | —10.42 | —1.17 | —0.53 | +19.27 | + 7.15 | 82.00 |
| | 12 | 76.7 | 75.84 | —10.42 | —1.18 | —0.54 | +19.33 | + 7.19 |
| | 13 | 76.2 | 75.35 | —10.42 | —1.19 | —0.54 | +19.38 | + 7.23 |
| | 17 | 75.5 | 74.65 | —10.43 | —1.22 | —0.57 | +19.53 | + 7.31 |
| | Oct. 1 | 76.4 | 75.55 | —10.46 | —1.32 | —0.55 | +19.30 | + 6.97 |
| | 2 | 76.7 | 75.84 | —10.46 | —1.33 | —0.54 | +19.25 | + 6.92 |
| | 4 | 76.6 | 75.74 | —10.47 | —1.34 | —0.53 | +19.12 | + 6.78 |
| | 14 | 77.5 | 76.63 | —11.30 | —4.10 | —0.56 | +19.48 | + 3.52 |
| | 1743 Sept. 13 | 82.5 | 81.58 | —12.17 | —6.45 | —0.54 | +19.35 | + 0.19 |
| | 1745 Sept. 13 | 87.8 | 86.82 | —13.91 | —8.84 | —0.54 | +19.38 | —3.91 |
| 1746 Sept. 26 | 87.8 | 86.82 | —13.91 | —8.84 | —0.55 | +19.42 | —3.88 | 82.94 |
| | 16 | 87.3 | 86.33 | —13.92 | —8.84 | —0.56 | +19.50 | —3.82 |
| | 14 | 87.8 | 86.82 | —14.82 | —8.59 | —0.57 | +19.51 | —4.37 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|-------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1746 Oct. 1 | 87.0 | 86.03 | -14.83 | -8.58 | -0.55 | +19.32 | -4.64 | 81.39 |
| 1747 Sept. 11 | 87.0 | 86.03 | -15.66 | -7.46 | -0.53 | +19.24 | -4.41 | 81.62 |
| 12 | 87.2 | 86.23 | -15.66 | -7.46 | -0.54 | +19.30 | -4.36 | 81.67 |
| 13 | 87.0 | 86.03 | -15.66 | -7.45 | -0.54 | +19.35 | -4.30 | 81.70 |

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Assuming $P = 32^\circ 20' - 81''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1727 Sept. 2 | 33.0 | 32.63 | -46.32 | +0.68 | +0.34 | - 1.86 | -47.16 | 79.79 |
| 15 | 38.4 | 37.98 | -45.61 | +0.76 | +0.14 | + 2.03 | -42.68 | 80.66 |
| 19 | 40.7 | 40.24 | -45.39 | +0.78 | +0.07 | + 3.23 | -41.31 | 81.55 |
| 20 | 42.0 | 41.53 | -45.34 | +0.79 | +0.05 | + 3.53 | -40.97 | 82.50 |
| 26 | 43.5 | 43.01 | -45.02 | +0.82 | -0.06 | + 5.28 | -38.98 | 81.99 |
| 27 | 44.3 | 43.81 | -44.96 | +0.83 | -0.08 | + 5.56 | -38.65 | 82.46 |
| 30 | 43.8 | 43.31 | -44.80 | +0.85 | -0.13 | + 6.44 | -37.64 | 80.94 |
| Oct. 8 | 45.7 | 45.19 | -44.36 | +0.89 | -0.26 | + 8.64 | -35.03 | 80.22 |
| 10 | 47.4 | 46.88 | -44.25 | +0.91 | -0.29 | + 9.17 | -34.46 | 81.34 |
| 19 | 49.7 | 49.14 | -43.76 | +0.96 | -0.41 | +11.41 | -31.80 | 80.94 |
| 31 | 53.3 | 52.71 | -43.12 | +1.03 | -0.51 | +13.97 | -28.63 | 81.34 |
| Nov. 6 | 55.0 | 54.39 | -42.79 | +1.07 | -0.53 | +15.03 | -27.22 | 81.61 |
| 25 | 57.8 | 57.16 | -41.87 | +1.18 | -0.43 | +17.28 | -23.84 | 81.00 |
| Dec. 3 | 60.0 | 59.33 | -41.33 | +1.23 | -0.32 | +17.67 | -22.75 | 82.08 |
| 16 | 59.6 | 58.93 | -40.62 | +1.30 | -0.12 | +17.54 | -21.90 | 80.83 |
| 17 | 60.8 | 60.12 | -40.57 | +1.31 | -0.10 | +17.49 | -21.87 | 81.99 |
| 23 | 60.3 | 59.63 | -40.24 | +1.34 | +0.02 | +17.09 | -21.79 | 81.42 |
| 24 | 60.7 | 60.02 | -40.19 | +1.35 | +0.04 | +17.00 | -21.80 | 81.82 |
| 25 | 60.2 | 59.53 | -40.13 | +1.36 | +0.06 | +16.90 | -21.81 | 81.34 |
| 1728 Jan. 1 | 60.2 | 59.53 | -39.70 | +1.40 | +0.20 | +15.98 | -22.12 | 81.65 |
| 9 | 59.2 | 58.54 | -39.21 | +1.45 | +0.32 | +14.76 | -22.68 | 81.22 |
| 14 | 58.0 | 57.35 | -39.00 | +1.48 | +0.39 | +13.81 | -23.32 | 80.67 |
| 27 | 55.4 | 54.79 | -38.29 | +1.55 | +0.50 | +10.91 | -25.33 | 80.12 |
| 31 | 55.0 | 54.39 | -38.07 | +1.59 | +0.53 | + 9.89 | -26.06 | 80.45 |
| Feb. 13 | 53.5 | 52.90 | -37.37 | +1.65 | +0.50 | + 8.29 | -28.93 | 81.83 |
| 14 | 51.6 | 51.02 | -37.32 | +1.66 | +0.49 | + 6.00 | -29.17 | 80.19 |
| 16 | 51.0 | 50.43 | -37.26 | +1.67 | +0.48 | + 5.42 | -29.69 | 80.12 |
| Apr. 3 | 40.2 | 39.75 | -34.66 | +1.95 | -0.25 | - 8.58 | -41.54 | 81.29 |
| 18 | 37.3 | 36.89 | -33.85 | +2.03 | -0.44 | -12.21 | -44.47 | 81.36 |
| 29 | 35.4 | 35.01 | -33.24 | +2.09 | -0.52 | -14.36 | -46.03 | 81.40 |
| May 19 | 31.0 | 30.65 | -32.16 | +2.21 | -0.47 | -17.00 | -47.42 | 78.07 |
| June 18 | 36.5 | 36.09 | -30.53 | +2.37 | -0.05 | -17.34 | -45.55 | 81.64 |
| 19 | 37.0 | 36.59 | -30.48 | +2.38 | -0.03 | -17.27 | -45.40 | 81.99 |
| 28 | 38.2 | 37.78 | -29.99 | +2.43 | +0.12 | -16.49 | -43.93 | 81.71 |
| July 4 | 37.3 | 36.89 | -29.66 | +2.46 | +0.22 | -15.76 | -42.74 | 79.63 |
| 5 | 38.0 | 37.58 | -29.61 | +2.47 | +0.24 | -15.62 | -42.52 | 80.10 |
| 9 | 39.5 | 39.06 | -29.40 | +2.49 | +0.30 | -14.93 | -41.54 | 80.60 |
| 16 | 40.0 | 39.55 | -29.02 | +2.53 | +0.39 | -13.74 | -39.84 | 79.39 |
| Aug. 7 | 46.5 | 45.98 | -27.82 | +2.65 | +0.53 | - 8.96 | -33.60 | 79.58 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Solar Nutation | Lunar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1728 | Aug. 9 | 47.0 | 46.48 | -27.71 | +2.67 | +0.53 | - 8.43 | -32.94 79.42 |
| | Sept. 24 | 63.7 | 62.99 | -25.22 | +2.92 | -0.02 | + 4.91 | -17.41 80.40 |
| | 29 | 66.0 | 65.26 | -24.95 | +2.94 | -0.11 | + 6.36 | -15.76 81.03 |
| | Oct. 1 | 66.2 | 65.46 | -24.84 | +2.95 | -0.15 | + 6.92 | -15.12 80.58 |
| | 29 | 75.5 | 74.65 | -23.32 | +3.11 | -0.50 | +13.73 | - 6.98 81.63 |
| | 30 | 75.7 | 74.85 | -23.27 | +3.11 | -0.50 | +13.92 | - 6.74 81.59 |
| | Nov. 11 | 78.0 | 77.13 | -22.60 | +3.17 | -0.52 | +15.90 | - 4.05 81.18 |
| | 28 | 81.5 | 80.59 | -21.70 | +3.26 | -0.39 | +17.51 | - 1.32 81.91 |
| | Dec. 3 | 83.5 | 82.57 | -21.43 | +3.29 | -0.32 | +17.69 | - 0.77 83.34 |
| | 4 | 82.7 | 81.78 | -21.38 | +3.29 | -0.31 | +17.71 | - 0.69 82.47 |
| | 10 | 83.0 | 82.08 | -21.04 | +3.33 | -0.22 | +17.71 | - 0.22 82.30 |
| | 11 | 83.5 | 82.57 | -20.98 | +3.33 | -0.20 | +17.69 | - 0.16 82.73 |
| | 12 | 83.0 | 82.08 | -20.93 | +3.34 | -0.18 | +17.66 | - 0.11 82.19 |
| | 15 | 82.3 | 82.38 | -20.77 | +3.35 | -0.13 | +17.55 | 0.00 82.38 |
| 1729 | 20 | 83.0 | 82.08 | -20.50 | +3.38 | -0.04 | +17.26 | + 0.10 81.98 |
| | 22 | 83.5 | 82.57 | -20.39 | +3.39 | 0.00 | +17.11 | + 0.11 82.46 |
| | 24 | 82.5 | 81.58 | -20.29 | +3.40 | +0.04 | +16.99 | + 0.14 81.44 |
| | 27 | 83.0 | 82.08 | -20.13 | +3.41 | +0.10 | +16.63 | + 0.01 82.07 |
| | Jan. 1 | 83.3 | 82.38 | -19.80 | +3.45 | +0.21 | +15.88 | - 0.26 82.12 |
| | Feb. 2 | 78.0 | 77.13 | -18.06 | +3.61 | +0.53 | + 9.17 | - 4.75 81.88 |
| | Mar. 9 | 68.7 | 67.93 | -16.17 | +3.79 | +0.19 | - 1.21 | -13.40 81.33 |
| | 28 | 63.5 | 62.79 | -15.14 | +3.89 | -0.15 | - 6.86 | -18.26 81.05 |
| | 29 | 64.5 | 63.78 | -15.09 | +3.89 | -0.17 | - 7.13 | -18.50 82.28 |
| | Apr. 20 | 59.0 | 58.34 | -13.88 | +4.00 | -0.47 | -12.60 | -22.95 81.29 |
| | June 14 | 58.5 | 57.84 | -10.90 | +4.26 | -0.12 | -17.56 | -24.32 82.16 |
| | 15 | 57.5 | 56.86 | -10.85 | +4.26 | -0.10 | -17.52 | -24.21 81.07 |
| | 16 | 57.4 | 56.77 | -10.79 | +4.27 | -0.09 | -17.47 | -24.08 80.85 |
| | 17 | 57.0 | 56.37 | -10.74 | +4.27 | -0.07 | -17.42 | -23.96 80.33 |
| | 18 | 57.7 | 57.06 | -10.68 | +4.28 | -0.05 | -17.36 | -23.81 80.87 |
| | 19 | 57.0 | 56.37 | -10.63 | +4.28 | -0.03 | -17.30 | -23.68 80.05 |
| 1730 | 22 | 59.0 | 58.34 | -10.47 | +4.30 | +0.02 | -17.08 | -23.23 81.57 |
| | July 5 | 59.5 | 58.83 | - 9.77 | +4.36 | +0.24 | -15.66 | -20.83 79.66 |
| | Oct. 21 | 94.0 | 92.95 | - 3.91 | +4.83 | -0.43 | +11.98 | +12.47 80.48 |
| | 25 | 95.0 | 93.94 | - 3.69 | +4.85 | -0.47 | +12.85 | +13.54 80.40 |
| | 26 | 97.0 | 95.92 | - 3.64 | +4.85 | -0.48 | +13.06 | +13.79 82.13 |
| | 28 | 97.8 | 96.71 | - 3.53 | +4.86 | -0.50 | +13.48 | +14.31 82.40 |
| | Dec. 4 | 104.5 | 103.33 | - 1.55 | +5.00 | -0.31 | +17.70 | +20.84 82.49 |
| | 14 | 105.0 | 103.83 | - 0.98 | +5.05 | -0.17 | +17.64 | +21.54 82.29 |
| | 21 | 105.5 | 104.32 | - 0.60 | +5.08 | -0.02 | +17.23 | +21.69 82.63 |
| | 22 | 106.7 | 105.51 | - 0.55 | +5.08 | 0.00 | +17.13 | +21.84 83.67 |
| 1731 | June 18 | 79.5 | 78.61 | + 9.16 | +5.72 | -0.05 | -17.37 | - 2.44 81.05 |
| | 22 | 80.0 | 79.11 | + 9.37 | +5.73 | +0.02 | -17.10 | - 1.98 81.09 |
| | 30 | 79.5 | 78.61 | + 9.81 | +5.76 | +0.16 | -16.32 | - 0.59 79.20 |
| | Dec. 20 | 128.0 | 126.57 | +19.19 | +6.22 | -0.04 | +17.30 | +42.67 83.90 |
| | 22 | 127.3 | 127.89 | +19.30 | +6.22 | 0.00 | +17.15 | +42.67 85.22 |
| | 23 | 127.8 | 126.38 | +19.35 | +6.22 | +0.02 | +17.06 | +42.65 83.73 |
| | Jan. 4 | 126.0 | 124.60 | +20.06 | +6.26 | +0.26 | +15.53 | +42.11 82.49 |
| 1732 | Jan. 19 | 145.0 | 143.39 | +40.77 | +6.68 | +0.46 | +12.78 | +60.69 82.70 |
| 1733 | Jan. 10 | 164.0 | 162.17 | +60.13 | +6.34 | +0.36 | +14.43 | +81.26 80.91 |
| | 12 | 164.2 | 162.37 | +60.24 | +6.34 | +0.38 | +14.05 | +81.01 81.36 |
| 1734 | June 23 | 158.5 | 156.73 | +88.87 | +4.57 | +0.04 | -17.02 | +76.46 80.27 |
| | 24 | 159.0 | 157.23 | +88.92 | +4.57 | +0.05 | -16.98 | +76.56 80.67 |

TABLE V.—*Reduction of the Wanstead Observations.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|----------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1734 Dec. 22 | 204.0 | 201.73 | + 98.74 | + 3.67 | 0.00 | + 17.15 | + 119.56 | 82.17 |
| 1735 Jan. 2 | 203.5 | 201.23 | + 99.39 | + 3.61 | + 0.23 | + 15.82 | + 119.05 | 81.18 |
| 5 | 203.0 | 200.74 | + 99.55 | + 3.59 | + 0.28 | + 15.37 | + 118.79 | 81.95 |
| 1739 Jan. 2 | 276.5 | 273.42 | + 178.82 | - 4.84 | + 0.23 | + 15.82 | + 190.03 | 83.39 |
| 3 | 276.0 | 272.93 | + 178.87 | - 4.85 | + 0.24 | + 15.68 | + 189.94 | 82.99 |
| 8 | 273.8 | 270.75 | + 179.14 | - 4.87 | + 0.32 | + 14.89 | + 189.48 | 81.27 |
| 1740 Feb. 1 | 291.0 | 287.76 | + 200.35 | - 6.17 | + 0.53 | + 9.65 | + 204.36 | 83.40 |
| 1747 Mar. 10 | 433.5 | 428.67 | + 341.32 | + 2.64 | + 0.18 | - 1.33 | + 342.81 | 85.86 |

Reduction of the Observations at Kew.

γ DRACONIS.

Assuming $P = 38^\circ 28' - 4''$.

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|---------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1726 Jan. 1 | 3.58 | 3.56 | + 3.62 | - 7.99 | + 0.53 | - 4.36 | - 8.20 | 4.64 |
| 14 | 9.60 | 9.53 | + 3.58 | - 8.03 | + 0.36 | - 8.60 | - 12.69 | 3.16 |
| Feb. 24 | 18.67 | 18.52 | + 3.48 | - 8.16 | - 0.39 | - 18.08 | - 23.15 | 4.63 |
| Mar. 17 | 21.06 | 20.90 | + 3.43 | - 8.23 | - 0.57 | - 19.55 | - 24.92 | 4.02 |
| Apr. 1 | 20.24 | 20.08 | + 3.40 | - 8.28 | - 0.52 | - 19.07 | - 24.47 | 4.39 |
| 17 | 19.14 | 18.99 | + 3.35 | - 8.32 | - 0.32 | - 17.16 | - 22.45 | 3.46 |
| 18 | 18.55 | 18.41 | + 3.35 | - 8.33 | - 0.30 | - 17.00 | - 22.28 | 3.87 |
| 25 | 17.44 | 17.31 | + 3.33 | - 8.34 | - 0.18 | - 15.73 | - 20.92 | 3.61 |
| May 5 | 14.90 | 14.79 | + 3.30 | - 8.37 | + 0.01 | - 13.55 | - 18.61 | 3.82 |
| 12 | 12.75 | 12.66 | + 3.29 | - 8.39 | + 0.14 | - 11.78 | - 16.74 | 4.08 |
| June 3 | 6.73 | 6.67 | + 3.24 | - 8.44 | + 0.48 | - 5.39 | - 10.11 | 3.44 |
| 7 | 4.65 | 4.62 | + 3.23 | - 8.45 | + 0.51 | - 4.13 | - 8.84 | 4.22 |
| 11 | 2.82 | 2.79 | + 3.22 | - 8.46 | + 0.55 | - 2.84 | - 7.53 | 4.74 |
| 12 | 2.89 | 2.87 | + 3.22 | - 8.47 | + 0.55 | - 2.52 | - 7.22 | 4.35 |
| 17 | 1.37 | 1.36 | + 3.21 | - 8.48 | + 0.57 | - 0.91 | - 5.61 | 4.25 |
| 18 | 0.70 | 0.70 | + 3.20 | - 8.48 | + 0.57 | - 0.59 | - 5.30 | 4.60 |
| 19 | 0.54 | 0.54 | + 3.20 | - 8.48 | + 0.58 | - 0.26 | - 4.96 | 4.42 |
| 22 | 0.92 | 0.91 | + 3.19 | - 8.49 | + 0.57 | + 0.72 | - 4.01 | 3.10 |
| 23 | 0.23 | 0.23 | + 3.19 | - 8.49 | + 0.57 | + 0.04 | - 3.69 | 3.92 |
| 24 | 0.75 | 0.75 | + 3.18 | - 8.50 | + 0.57 | + 1.36 | - 3.39 | 4.14 |
| 25 | 1.85 | 1.83 | + 3.18 | - 8.50 | + 0.57 | + 1.68 | - 3.07 | 4.90 |
| 27 | 2.07 | 2.05 | + 3.18 | - 8.50 | + 0.56 | + 2.33 | - 2.43 | 4.48 |
| 30 | 3.22 | 3.20 | + 3.18 | - 8.51 | + 0.55 | + 3.30 | - 1.48 | 4.68 |
| July 6 | 4.78 | 4.75 | + 3.16 | - 8.53 | + 0.50 | + 5.19 | + 0.32 | 4.43 |
| 8 | 5.69 | 5.65 | + 3.15 | - 8.53 | + 0.48 | + 5.81 | + 0.91 | 4.74 |
| 10 | 5.82 | 5.77 | + 3.15 | - 8.54 | + 0.46 | + 6.45 | + 1.52 | 4.25 |
| 11 | 6.45 | 6.40 | + 3.14 | - 8.54 | + 0.45 | + 6.76 | + 1.81 | 4.59 |
| 12 | 5.87 | 5.82 | + 3.14 | - 8.54 | + 0.43 | + 7.06 | + 2.09 | 3.73 |
| 14 | 8.32 | 8.26 | + 3.13 | - 8.55 | + 0.41 | + 7.67 | + 2.66 | 5.60 |
| 17 | 8.30 | 8.24 | + 3.13 | - 8.55 | + 0.37 | + 8.54 | + 3.49 | 4.75 |

TABLE V.—*Reduction of the Observations at Kew.*

| Day of Observation | Observation | | Precession | Lunar Nutation | Solar Nutation | Aberration | Sum | Reduced to 1730 |
|--------------------|---------------------|---------|------------|----------------|----------------|------------|--------|-----------------|
| | Division of Microm. | Seconds | | | | | | |
| 1726 July 20 | 9.01 | 8.94 | +3.13 | -8.56 | +0.32 | + 9.42 | + 4.31 | 4.63 |
| | 21 | 9.14 | 9.07 | +3.12 | -8.56 | +0.30 | + 9.71 | 4.50 |
| | 23 | 9.37 | 9.30 | +3.12 | -8.57 | +0.27 | +10.27 | 4.21 |
| | 29 | 10.69 | 10.61 | +3.10 | -8.58 | +0.17 | +11.86 | 4.06 |
| | Aug. 16 | 13.85 | 13.74 | +3.06 | -8.61 | -0.18 | +15.94 | 3.53 |
| | 20 | 14.82 | 14.70 | +3.04 | -8.62 | -0.25 | +16.68 | 3.85 |
| | Sept. 5 | 16.71 | 16.59 | +3.01 | -8.64 | -0.48 | +18.80 | 3.90 |
| | 8 | 17.95 | 17.81 | +3.00 | -8.65 | -0.51 | +19.06 | 4.91 |
| | 9 | 17.47 | 17.34 | +2.99 | -8.65 | -0.52 | +19.13 | 4.39 |
| | 13 | 17.27 | 17.14 | +2.98 | -8.66 | -0.54 | +19.37 | 3.99 |
| | 16 | 18.15 | 18.01 | +2.98 | -8.66 | -0.56 | +19.48 | 4.77 |
| | 18 | 16.80 | 16.67 | +2.98 | -8.67 | -0.57 | +19.54 | 3.39 |
| | 19 | 17.20 | 17.07 | +2.97 | -8.67 | -0.57 | +19.56 | 3.78 |
| | 20 | 17.39 | 17.26 | +2.97 | -8.67 | -0.57 | +19.57 | 3.96 |
| | 22 | 16.98 | 16.85 | +2.96 | -8.68 | -0.57 | +19.58 | 3.56 |
| | 25 | 17.47 | 17.34 | +2.96 | -8.68 | -0.57 | +19.54 | 4.09 |
| | 26 | 18.29 | 18.15 | +2.96 | -8.68 | -0.57 | +19.52 | 4.92 |
| | 29 | 17.70 | 17.57 | +2.95 | -8.69 | -0.56 | +19.42 | 4.45 |
| Oct. 6 | 16.73 | 16.61 | +2.93 | -8.70 | -0.52 | +18.99 | +12.70 | 3.91 |
| | 7 | 16.54 | 16.42 | +2.93 | -8.70 | -0.51 | +18.90 | 3.80 |
| 1727 Jan. 6 | 16.27 | 16.15 | +2.93 | -8.70 | -0.50 | +18.81 | +12.54 | 3.61 |
| | 12 | 16.06 | 15.94 | +2.91 | -8.71 | -0.45 | +18.40 | 3.79 |
| | 28 | 13.30 | 13.20 | +2.88 | -8.74 | -0.19 | +15.85 | 3.40 |
| | Mar. 2 | 22.62 | 21.85 | +2.56 | -8.86 | -0.48 | -18.84 | -25.62 |
| | June 8 | 5.86 | 5.81 | +2.32 | -8.87 | +0.53 | -3.99 | -10.01 |
| | 18 | 2.77 | 2.75 | +2.29 | -8.87 | +0.57 | -0.59 | 3.85 |
| | 20 | 2.06 | 2.04 | +2.29 | -8.87 | +0.58 | + 0.08 | 3.88 |
| | 23 | 1.64 | 1.63 | +2.28 | -8.87 | +0.57 | + 1.04 | 3.35 |
| | July 30 | 10.99 | 10.90 | +2.18 | -8.86 | +0.15 | +12.07 | 5.54 |
| | Aug. 11 | 11.90 | 11.81 | +2.16 | -8.85 | -0.08 | +14.89 | 3.69 |
| | 17 | 13.80 | 13.69 | +2.14 | -8.84 | -0.19 | +16.09 | 4.49 |
| | Sept. 2 | 15.61 | 15.49 | +2.10 | -8.83 | -0.44 | +18.47 | 4.19 |
| | 15 | 15.98 | 15.85 | +2.07 | -8.82 | -0.56 | +19.44 | 3.72 |

CORRECTIONS

Communicated by Dr. Busch after the Tables were printed.

| | | | | |
|-------|--------------|--------------|-------------|-------------|
| P. 4. | 1730 Apr. 10 | 18 Cam. | for 5.585 | r. 5.885 |
| 13. | 1730 Aug. 18 | Herc. | 16.456 | 16.456 |
| 14. | 1733 Jan. 10 | Red. to 1730 | 99.07 | 99.97 |
| 19. | 1740 Feb. 2 | Seconds | 71.58 | 71.60 |
| — | 1728 July 9 | Division | 88.9 | 88.0 |
| 22. | 1728 Mar. 29 | Aberration | 6.94 | 6.49 |
| 26. | 18 Camelop. | ————— | P = 35° 0' | P = 33° 0' |
| 32. | ε Urse maj. | ————— | P = 32° 20' | P = 32° 30' |
| — | 1728 Dec. 27 | Division | 145.0 | 145.5 |
| 33. | 1729 Aug. 1 | Precession | 8.62 | 8.26 |
| 34. | 1747 Mar. 10 | Sum | 334.68 | 364.68 |
| 40. | 1728 Jan. 27 | Precession | 6.10 | 6.20 |
| 45. | 1729 Mar. 8 | Sol. Nut. | 0.57 | 0.54 |
| 48. | 1728 Aug. 16 | Red. to 1730 | 82.13 | 82.18 |
| 49. | 1729 Jan. 1 | Seconds | 91.16 | 91.96 |
| 50. | 1730 Dec. 20 | Lun. Nut. | 3.71 | 3.17 |
| 51. | 1731 Oct. 1 | Sum | 16.24 | 16.20 |
| — | 1732 Jan. 11 | Lun. Nut. | 0.52 | 0.28 |
| — | 1734 July 16 | Seconds | 71.64 | 71.69 |
| — | 1736 | Day of Obs. | Aug. 11. | Sept. 11 |
| — | 1737 | ————— | Sept. 23 | Dec. 23 |

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